UNITED STATES DEPARTMENT OF COMMERCE
OFFICE OF TECHNICAL SERVICES

BIBLIOGRAPHY
OF SCIENTIFIC AND INDUSTRIAL REPORTS

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* Indicates that reports in the BIOS, CIOS and FIAT series are deposited in the Library of Congress Depository Libraries. For a complete list of these libraries, see page facing page 1, volume 5, of this Bibliography.

In addition to the indexes described on the back cover of this Bibliography, the Office of Technical Services has published the following reference works:

PB L 61500. HOLLOWAY, O. WILLARD and ISAAC, OLIVER B. Classified list of OTS printed reports: A list of reports on German and Japanese technology, prepared by American investigators, which are available in printed form from the Office of Technical Services. Oct 1947. 59 p. Price: 75¢

PB L 78000. LOWRY, W. KENNETH. OSRD reports: Bibliography and index of declassified reports having OSRD numbers. Jun 1947. 105 p. Price: 75¢

PB L 58101-R. SWIFT, GRACE. Government document series, analyzed by Office of Technical Services. Rev. Nov 1947. 45 p. Price: 25¢

PB L 79322. SWIFT, GRACE and ORNE, JERROLD. Subject headings for technical libraries. Jun 1947. 167 p. Price: $1.50

PB L 61803. U. S. OFFICE OF TECHNICAL SERVICES, TECHNICAL INDUSTRIAL INTELLIGENCE DIVISION. Reports resulting from the investigation of German technology, 1945-1946, and index of personnel. May 1947. 207 p. Price: $5.25

ERRATUM:

v. 5. p. 1183 PB L 60755 was erroneously listed as PB L 61755.

CHEMICALS AND ALLIED PRODUCTS

Drugs and Pharmaceuticals

PB L 87304. MERCK, E. Eukodal. Jan 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
The Merck process for producing Eukodal is described. Starting material is thebaine, a byproduct of the process for morphine from opium. Thebaine is dissolved in aqueous formic acid and heated with hydrogen peroxide to 41-42° C. for 6 hours. Thereby it is transformed to hydroxycodeinone. The latter is dissolved in acetic acid and hydrogenated, at 30-35° C., under slightly raised pressure and in the presence of palladium charcoal within 6-8 hours. In German.

PB L 86165. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Imperial college, S.W. 7. (British Rept BP 229a). n. d. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
The report mentions reactions in connection with the study of the preparation and structure of thiazolinyloxasolones.

PB L 86166. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Infra-red measurements on penicillin and related compounds. By H. W. Thompson and R. E. Richards. (British Rept Br. 244; Committee on Penicillin Synthesis Rept 698). Mar 1946. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00
The results are presented in two parts, first those dealing with the simpler amides, and secondly those on more complex substances and modal compounds. Conclusions: Part I. It seems that the spectroscopic data for the 3 μ and 6 μ regions indicate the existance of the amides in the ketonic form which associates through N-H---O bonds in concentraded solutions, in the liquids and in the solids. Part II. The spectrum of sodium penicillin G is satisfactorily in agreement with the presence of a fused β-lactam ring. As regards the amide side chain, if present in penicillin it must be regarded as an extreme case, for which parallels are only found in the desthiopenicillin and a few other fused lactams very closely related to penicillin. The frequencies found with solid sodium penicillin G which would have to be attributed to the carbonyl and N-H links of the amide differ from all other amides. However, the balance of evidence now certainly favors the β-lactam-amide structure first suggested by the Shell Laboratories. Fourteen figures representing the spectra are attached representing the tables in the text of the report.

PB L 86167. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. The recovery of penicillin. (Chas Pfizer & Co., Inc., Rept P 2). Jan 1944. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00
Data are given for the recovery and elution of penicillin for both surface and submerged fermentation liquors using Norite A and Nuchar C-190, and a mixture of organic solvents and water. The methods of preparation and purification of several salts of penicillin are given. Tables and graphs accompany the report. Chas Pfizer & Co.

PB L 86168. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Small pilot-plant recovery and purification of penicillin - chemical observations. (Chas Pfizer & Co. Inc., Rept P 3). Jan 1944. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
A brief discussion is given on the recovery, purification, stability, and chemistry of penicillin. Chas Pfizer & Co.

PB L 86169. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Examination of penicillin mother liquors. (Chas Pfizer & Co. Inc., Rept P 4). 1 p. Price: Microfilm-$1.00 - Photostat-$1.00
A very brief discussion is given with the object of isolating products related to penicillin. Chas. Pfizer & Co.

PB L 86170. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectrographic studies on the structure of penicillin. Progress report. (CMR Randall Rept R 3). Apr 1945. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
Additional information and discussion is presented on the following subjects which were among those introduced in the March 1945 report: (1) experiments on deuterization, (2) remark on the structure of amides, (3) further comment on the structure of pseudo-methyl penicillin G, and (4) the carboxylate ion, phenylacetyl glycine and 2-benzyl-5-oxazolone hydrobromide. The spectra for 33 organic compounds are given and a correction to Chart V, spectrum 45 in the March progress report (1945). Charts and tables are attached. University of Michigan.

PB L 86171. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectographic studies on the structure of penicillin. Progress report. (CMR Randall Rept R 4). May 1945. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00
The report contains infra red data on the following: (1) free penicillin acid, (2) sulfur linkages in penicillin, (3) verification of the presence of amide groups in penicillin, (4) remarks on the spectra of the penicillins and penicilloates, and (5) solvents. Spectra for 30 additional compounds are presented. Charts illustrating these spectra together with tables of wavelengths are included at the end of the report. University of Michigan.

PB L 86172. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectographic studies on the structure of penicillin. Progress report. (CMR Randall Rept R-5). Jun 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
This progress report contains data on the following: (1) technique to obtain better spectra of penicillin G and its derivatives, (2) new experimental results; a) alteration of sodium penicillin with methyl cellusolve, b) isomeric penicilloates, c) stability of the free acid, and d) affect of solvent on spectra of solids, and (3) interpretation; a) further discussion of the amide group, and b) the structure of penicillin G. The infra red spectra are given for a list of compounds with charts and tables at the end of the report. University of Michigan.

PB L 86173. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectrographic studies on the structure of penicillin. Progress report. (CMR Randall Rept R-6). Jul 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report contains data on infrared spectrographic studies on: (1) sodium penicillins F, G, and K, and the cellosolve modification of G which is termed penicillin GX, and a discussion of the structure of penicillin G. Infrared spectra for new compounds are given with charts and tables of wave lengths at the end of the report. University of Michigan.

PB L 86174. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectrographic studies on the struc-

ture of penicillin. Progress report. (CMR Randall Rept R-7). Aug 1945. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00
The following data are covered in this report: (1) Solid-paraffin oil paste, (2) the dual spectra of penicillin, (3) the dual spectra of penicillin in relation to the structure of penicillin, (4) comparison of 1-benzyl-5-phenacetamide-5,6-dihydro-2-thiouracil with model compounds, and (5) photostatic reproduction of spectra. The appendix contains information concerning the spectrum of the sodium salt of desthiopenicillin in paraffin oil. Tables and charts are attached at end of the report. University of Michigan.

PB L 86175. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Infrared spectrographic studies on the structure of penicillin. Progress report. (CMR Randall Rept R-8). Sep 1945. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00
The report is divided into two parts. Part I - spectrographic work on cyclic ureides, and Part II - remarks on the spectrum of penicillins F, G, X, and an azopenicillin. Tables and charts are attached. University of Michigan.

PB L 86227. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Infrared spectrographic studies on the structure of penicillin: General methods of organic structural analysis by the infrared spectrum, with application to the structure of penicillin. Final report. Dec 31, 1945. (Section V, A catalog of absorption bands and their interpretations, is bound separately. See PB 86227-S). By H. M. Randall and others. (Randall Rept R-12A). Dec 1945. 89 p. Price: Microfilm-$3.00 - Photostat-$9.00
This final report comprises the major facts obtained and conclusions drawn through the infrared analysis of complex molecules. Section I deals with the instruments and methods used to obtain the spectra of the compounds. Sections II and III deal with the technique of interpretation in general and its application to the study of organic compounds possessing recognisable infrared bands. Section IV presents a study of the molecular structure of penicillin as interpretated by infrared spectra. Figures and tables accompany the report. University of Michigan. Parts of this report will not reproduce well.

PB L 86227-S. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Catalog of absorption bands and their interpretations. (Section V of Infrared spectographic studies on the structure of penicillin, and supplement to its final report of Dec 31, 1945, PB 86227). By H. M. Randall and others. (Randall Rept R-12B). Dec 1945. 82 p. Price: Microfilm-$3.00 - Photostat-$9.00
This report which is given as a supplement to Randall Rept R 12A (PB 86227) is Section V mentioned in that report. Catalogue A contains the wave lengths and intensities for the 129 compounds studied, catalogue B records the strong bands in the region 5.36 to 6.92 μ, listed in order of wave length, catalogue C is the same as A except that the spectra listed are those of compounds in solution.

PB L 86176. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Experiments on the synthesis of penicillin and allied substances. (Upjohn Co. Rept U-7). May-Jun 1944. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
This report is divided as follows: Part I - synthesis of des-thiopenicillin, Part II - synthesis of benzylamide of penaldic acid G, Part III - benzylureide of d-penilloic acid G, Part IV - reactions of 2-benzyl-4-hydroxy (and ethoxy) methylene-4(5) oxazolone, and Part V - miscellaneous experiments. This section contains preparatory details and brief discussions of attempted preparation of those compounds which do not fit smoothly into parts I through IV. Flow sheets and experimental details follow each part. Upjohn Company.

PB L 86177. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Reduction of 4-carboxythiazolidines with sodium in liquid ammonia. By Byron E. Leach and others. (Upjohn Co. Rept U 28). n. d. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
A method is described for the preparation of α-(N-substituted)-β-thiol carboxylic acids and for the reduction of 4-carboxythiazolidines with metallic sodium in liquid ammonia. Experimental data are included. Upjohn Company.

PB L 86178. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. The synthesis of desthio-dihydropenillamine. By Leon E. Tenenbaum and others. (Upjohn Co. Rept U 29). n. d. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
The synthesis of α-(2-benzyl-1-imidazolinyl)-isovaleric acid has been accomplished by the cyclication of N-(2-phenylthioacetaminoethyl)-valine.

PB L 86179. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Para-hydroxyphenylacetic acid, a precurser for penicillin X. By William J. Haines and George F. Cartland. (Upjohn Rept U-30). n. d. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
The addition of p-hydroxyphenylacetic acid to penicillin brew decreases the fermentation period and increases the production of penicillin X. A method of controlled-microchromatography has been developed for the detection of small quantities of a specific type of penicillin in a complex mixture. Tables, acknowledgments, and bibliography are attached. Upjohn Company.

PB L 86180. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. The synthesis of penilloic acid and some related compounds. By Jared H. Ford and James H. Hunter. (Upjohn Co. Rept U-31). n.d. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00
Penilloic acid has been synthesized and found identical with that obtained as a degradation product of penicillin. Certain formulas have been eliminated for the structure of methyl penicilloic acid and for the benzylamide of penicilloic acid. Experimental details are included. Upjohn Company.

PB L 86181. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. COMMITTEE ON MEDICAL RESEARCH. Syntheses of penicilloic acid G benzylamide. By Jared H. Ford and others. (Upjohn Co. Rept U-32). Dec 1945. 12 p. Price: Microfilm- $1.25 - Photostat-$2.00
Three new syntheses of penicilloic acid G benzylamide, a degradation product of penicillin G, have been developed. Flow sheet and experimental data are included. Upjohn Company.

Dyes

PB L 25629. I. G. FARBENINDUSTRIE A. G. Analytical procedures for intermediates and organic products. As disclosed through T.E.A. Büro documents. (FIAT Microfilm Reel C 189, Frames 1-860) n. d. 934 f. Price: Microfilm-$6.00 - Enlargement print-$93.50
The 239 individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give PB and frame numbers when ordering individual items from this microfilm reel. In German. The legibility of this reel is very poor, many frames being illegible.

PB Number Frames	Title	Price
L 69876 Frames 1-2	Acetaldehyde. In German.	$1.00
L 69875 Frames 3-4	Acetanilide. In German.	1.00
L 69874 Frames 5-8	Acetoacetic ester. In German.	1.00
L 69873 Frame 9	Acetoacetic acid-2-chloro-anilide. In German.	1.00
L 69872 Frame 10	Acetoacetic acid-2-toluidide. In German.	1.00
L 69871 Frames 11-13	Acetoacetic acid-2-anisidide. In German.	1.00
L 69870 Frame 14	Acetoacetic acid-1,2,4-xylidide. In German.	1.00
L 69869 Frame 15	Aceto-K-acid. In German.	1.00
L 69868 Frame 16	Acetyl-o-anisidine. In German.	1.00
L 69867 Frame 17	Acetoparamic acid moist. In German.	1.00
L 87210 Frames 18-18A	Acetyl-1,4-phenylene-diamine-2-sulfonic acid. In German.	2.00
L 69866 Frames 19-21	Ethylaniline. In German.	1.00
L 69865 Frames 22-28	Ethylbenzylaniline-disulfonic acid. In German.	1.00
L 69864 Frames 29-31	Ethylbenzylaniline-monosulfonic acid. In German.	1.00
L 87211 Frame 32	Ethylbenzyl-m-toluidine-sulfonic acid. In German.	2.00
L 87212 Frames 33-36	Monoethylaniline. In German.	2.00
L 87213 Frame 37	Nitrosoethylbenzylaniline. In German.	2.00
L 69863 Frames 38-40	Alphanaphthamine. In German.	1.00
L 69862 Frames 41-44	Aluminum-chloride, anhydrous. In German.	1.00
L 69861 Frames 45-47	Alpha-aminoanthraquinone. In German.	1.00
Frame 48	This frame is illegible.	
L 69860 Frame 49	1-Amino-4-methoxyanthraquinone. In German.	1.00
L 69859 Frame 50	Sodium-2,6-anthraquinone-disulfonate. In German.	1.00
L 69858 Frames 51-52	1,5-Anthraquinone-disulfonic acid. In German.	1.00
L 69857 Frames 53-55	1,8-Anthraquinone-disulfonic acid. In German.	1.00
L 69856 Frames 56-58	Anthraquinone-2-sulfonic acid. In German.	1.00
L 69855 Frames 59-60	Anthracene. In German.	1.00
L 69854 Frames 61-65	Chromic acid solution. In German.	1.00
L 69853 Frames 66-68	1-Chloroanthraquinone. In German.	1.00
L 69852 Frame 69	2,6-Diaminoanthraquinone, commercial. In German.	1.00
L 69851 Frames 70-71	1',1"-Dianthraquinonyl-1,4-diaminoanthraquinone. In German.	1.00
L 69850 Frames 72-73	1,8-Dichloroanthraquinone. In German.	1.00
L 69849 Frames 74-75	1,5-Dihydroxyanthraquinone. In German.	1.00
L 69848 Frames 76-78	1,8-Dihydroxyanthraquinone. In German.	1.00
L 69847 Frames 79-80A	1-Methylamino-anthraquinone. In German.	1.00
Frames 81-82	These frames are illegible.	
L 69846 Frames 83-85A	Aminoazobenzene. In German.	1.00
Frames 86-87	These frames are illegible.	
L 69844 Frame 88	Aminoazotoluene-monosulfonic acid. In German.	1.00
L 69843 Frames 89-91	Aminoazotoluene. In German.	1.00
L 69842 Frames 92-94	2-Aminobenzoic acid. In German.	1.00
L 69841 Frames 95-96	4-Aminobenzoic acid. In German.	1.00
L 87214 Frames 96A-96B	3-Aminobenzoic acid. In German.	2.00
L 69840 Frames 97-100	4'-Aminobenzoyl-2-amino-5-naphthol-7-sulfonic acid. In German.	1.00
L 69839 Frames 101-104	1'-Aminobenzoyl-2-amino-5-naphthol-7-sulfonic acid. In German.	1.00

Dyes (contd)

Frame 105 — This frame is illegible.

L 69838 Frames 106-107A — Diethylaniline. In German. 1.00

L 69837 Frames 108-110 — Aromatic amines. In German. 1.00

L 69836 Frames 111-113 — Dimethylaniline. In German. 1.00

L 69832 Frames 114-116 — Methylaniline. In German. 1.00

L 69831 Frames 117-118 — Nitrosodimethylaniline. In German. 1.00

L 69834 Frame 119 — 4-Aminodiphenylamine, M. 184. In German. 1.00

L 69830 Frames 120-123 — 4-Aminodiphenylamine-2-sulfonic acid. In German. 1.00

L 69829 Frames 124-125 — 4-Aminodiphenylamine-2-sulfonic acid, azo-alpha-naphthylamine. In German. 1.00

L 69828 Frame 126 — 4-Aminodiphenylamine-2'-methoxy-2-sulfonic acid. In German. 1.00

L 69827 Frames 127-129A — Diphenylamine. In German. 1.00

L 69826 Frames 130-131 — Diphenylamine-sulfonic acid. In German. 1.00

L 69825 Frame 132 — 4-Methyl-4-aminodiphenylamine-2-sulfonic acid. In German. 1.00

L 69824 Frame 133 — 4-Nitro-4'-aminophenylamine-m-sulfonic acid ("Nitrophenyl-paraminesaeure"). In German. 1.00

L 69823 Frames 134-135 — "Nitrophenylaminesaeure." In German. 1.00

L 69822 Frames 136-138 — 4'-Hydroxy-2,4-dinitrodiphenyl-amine. In German. 1.00

L 69821 Frames 139-142 — Aniline. In German. Partly illegible. 1.00

L 87215 Frames 143-147 — Aniline-2,5-disulfonic acid. In German. 2.00

L 69820 Frames 148-150 — (mono) Benzylaniline-4-sulfonic acid. In German. 1.00

L 69819 Frames 151-152 — Dibenzylaniline. In German. 1.00

L 69818 Frame 153 — 4-Sulfanilic acid. In German. 1.00

L 69817 Frames 154-157 — Aniline-3-sulfonic acid. In German. 1.00

L 69816 Frames 158-161 — Aniline-2-sulfonic acid (Orthanilic acid). In German. 1.00

L 69815 Frames 162-163A — Aniline (omega) methane sulfonic acid. In German. 1.00

L 69814 Frame 164 — 1,7-Aminonaphthol. In German. 1.00

Frame 165 — This frame is illegible.

L 69813 Frames 166-168 — 1-Amino-2-naphtholethylether-6-sulfonic acid. In German. 1.00

L 69812 Frames 169-192 — Aminonaphthol-sulfonic acid. In German. 1.00

L 69811 Frame 193 — Aminosulfonic acid. In German. 1.00

L 69810 Frames 194-195 — 4-Aminophenol. In German. 1.00

L 69809 Frames 196-198 — 2-Aminophenol-4-sulfonic acid. In German. 1.00

L 69808 Frames 199-200 — 5-Nitro-2-aminophenol. In German. 1.00

L 87216 Frame 201 — Diethyl-1-3-aminophenol. In German. 2.00

L 87217 Frames 202-203 — 4-Nitro-2-aminophenol. In German. 2.00

L 87218 Frames 204-205 — 4,6-Dinitro-2-aminophenol. In German. 2.00

L 69807 Frames 206-207 — o-Aminosalicylic acid. In German. Poor legibility. 1.00

L 69806 Frames 207A-207C — p-Aminosalicylic acid. In German. Poor legibility. 1.00

L 69805 Frame 208 — Benzaldehyde. In German. 1.00

L 69804 Frames 209-210 — Benzaldehyde-2,4-disulfonic acid. In German. 1.00

Frames 211-214 — These frames are illegible.

L 87229 Frames 215-216 — 2,6-Dichloro-benzaldehyde. In German. 2.00

L 69803 Frames 217-219 — o-Sulfobenzaldehyde. In German. 1.00

L 69802 Frames 220-220A — Benzidine. In German. 1.00

L 69801 Frames 221-222 — Benzidinemonosulfonic acid. In German. Poor legibility. 1.00

Dyes (contd)

L 69800 Frames 223-228	Benzidinedisulfonic acid. In German. Poor legibility.	1.00
L 69799 Frames 229-233	"Benzidinsulfondisaeure." In German.	1.00
L 69798 Frames 234-235	4,4'-Diaminodiphenylamine. In German.	1.00
L 87230 Frames 236-239	4,4'-Diaminophenylamine-2-sulfonic acid. In German.	2.00
L 69797 Frames 240-241	3,3'-Dichlorobenzidine. In German.	1.00
L 69796 Frames 242-245	Benzoic acid. In German.	1.00
L 69795 Frame 246	"Broslaure." In German.	1.00
L 69794 Frames 247-249	"Bromhaas." In German.	1.00
L 69793 Frames 250-253	Benzylchloride. In German.	1.00
L 87231 Frames 254-258	Lead dioxide. In German.	2.00
L 69792 Frames 259-260	Quinaldine. In German.	1.00
L 87232 Frames 261-262	4-Chloro-5-amino-2-oxalyl-anisidine. In German.	2.00
L 69791 Frames 263-265	2-Chloroaniline. In German.	1.00
L 69790 Frame 266	3-Chloroaniline. In German.	1.00
L 69789 Frame 267	2-Chloroaniline-5-sulfonic acid. In German.	1.00
L 69788 Frames 268-269	4-Chloroaniline-2-sulfonic acid. In German. Incomplete.	1.00
Frame 270	This frame is missing.	
L 87233 Frame 271	2,5-Dichloroaniline-4-sulfonic acid. In German.	2.00
Frames 272-274	These frames are illegible.	
L 69786 Frame 275	Chlorobenzene. In German. Poor legibility.	1.00
L 87234 Frame 276	2,6-Diaminochlorobenzene-4-sulfonic acid. In German.	2.00
L 69785 Frames 277-278	Nitrobenzene, pure. In German.	1.00
L 69784 Frames 279-279A	1,4-Nitrochlorobenzene. In German. Poor legibility.	1.00
L 69783 Frames 280-281	1,2-Nitrochlorobenzene. In German. Poor legibility.	1.00
L 69782 Frame 282	4-Nitrochlorobenzene-2-sulfonic acid. In German. Poor legibility.	1.00
L 69781 Frames 283-284	2-Chloro-4-nitraniline. In German.	1.00
L 69780 Frame 285	"Echtorange-R.Base." In German.	1.00
L 69779 Frames 286-287	4-Chloro-2-toluidine. In German.	1.00
L 69778 Frames 288-289	2-Chlorotoluene. In German.	1.00
Frame 290	This frame is illegible.	
L 69777 Frames 291-295	4,4'-Diaminostilbene-2,2'-disulfonic acid. In German. Poor legibility.	1.00
L 87235 Frames 296-300	4,4'-Dinitrostilbene-2,2'-disulfonic acid. In German.	2.00
L 69776 Frames 301-303	Diamisidine. In German.	1.00
Frames 304-307	These frames are illegible.	
L 69774 Frames 308-309	Dicyanodiamide. In German. Poor legibility.	1.00
L 69773 Frames 310-311	Diformylmetaminesaeure. In German. Poor legibility.	1.00
L 69772 Frame 312	Diazo-amino-benzoyl-I-acid. In German.	1.00
L 69771 Frames 313-314	2,6-Dichloro-4-nitraniline. In German. Poor legibility.	1.00
L 69770 Frames 315-316	2,4-Dinitroaniline. In German. Poor legibility.	1.00
Frames 317-318	These frames are illegible.	
L 69769 Frames 319-323	1,3-Dinitrobenzene. In German. Poor legibility.	1.00
L 69768 Frames 324-327	2,4-Dinitrochlorobenzene. In German. Poor legibility.	1.00
L 69767 Frames 328-332	2,4-Dinitrochloro-benzene-6-sulfonic acid. In German.	1.00
L 69766 Frames 333-334	2,4-Dinitro-toluene. In German.	1.00
Frames 335-337	These frames are illegible.	
L 87236 Frames 338-339	Diphenyl-1,3-naphthylene-diamine-8-sulfonic acid. In German.	2.00
L 69764 Frames 340-341C	Gallocyanine dyes. In German.	1.00

Dyes (contd)

L 69763 Frame 342 — Humic acid. In German. 1.00

L 69762 Frame 343 — p-Metadiaminobenzoyl J acid. In German. 1.00

L 69761 Frames 344-345 — 1,5-Dihydroxynaphthalene. In German. 1.00

L 69760 Frames 346-352 — 1,8-Dihydroxynaphthalene-3,6-disulfonic acid. In German. 1.00

L 69759 Frames 353-356 — Monoacetyl-1,4-diaminonaphthalene-6-sulfonic acid. In German. 1.00

L 69758 Frames 357-361 — Naphthalene-1,5-disulfonic acid. In German. 1.00

L 69757 Frames 362-363A — Naphthalene-1,6-disulfonic acid. In German. 1.00

L 69756 Frames 364-366 — Sodium naphthalene-2-7-disulfonate. In German. Poor legibility. 1.00

L 69755 Frames 367-377 — Naphthalene-sulfonation in naphthalene-2-monosulfonic acid. In German. 1.00

Frames 378-379 — These frames are illegible.

L 69753 Frames 380-382 — Alpha-nitronaphthalene. In German. Poor legibility. 1.00

L 69752 Frames 383-385 — 1-Phenylaminonaphthalene-8-sulfonic acid. In German. Poor legibility. 1.00

L 69751 Frames 386-388 — 1-Tolylaminonaphthalene-8-sulfonic acid. In German. Poor legibility. 1.00

Frames 389-391 — These frames are illegible.

L 69750 Frames 391A-391D — Beta-naphthol. In German. Poor legibility. 1.00

L 69749 Frame 392 — Beta-naphthoquinaldine. In German. Poor legibility. 1.00

L 69747 Frame 393 — 8-Chlore-1-naphthol-3,6-disulfonic acid. In German. Poor legibility. 1.00

L 69748 Frames 394-395 — 1-Naphthol-3,6-disulfonic acid. In German. 1.00

L 69746 Frames 396-399A — 2-Naphthol-3,6-disulfonic acid. In German. 1.00

L 69745 Frames 400-402 — 2-Naphthol-6,8-disulfonic acid. In German. 1.00

L 69744 Frames 403-408 — 1-Naphthol-4-sulfonic acid. In German. 1.00

L 69743 Frame 409 — 1-Naphthol-5-sulfonic acid. In German. 1.00

L 69742 Frame 410 — 1-Naphthol-8-sulfonic acid. In German. 1.00

L 69741 Frame 411 — 1-Naphthol-3-sulfonic acid, N. 224. In German. 1.00

L 69740 Frame 412 — 2-Naphthol-1-sulfonic acid. In German. 1.00

L 69739 Frame 413 — 2-Naphthol-5-sulfonic acid. In German. 1.00

L 69738 Frames 414-418 — 2-Naphthol-7-sulfonic acid. In German. 1.00

L 69737 Frames 419-420 — 1-Naphthol-3,6,8-trisulfonic acid. In German. 1.00

L 69736 Frames 421-424 — 1-Diazo-2-naphthol-4-sulfonic acid. In German. 1.00

L 69735 Frames 425-429 — Nitrol-diazo-2-naphthol-4-sulfonic acid. In German. 1.00

L 69734 Frames 430-431 — 2-Phenylamino-8-naphthol-6-sulfonic acid. In German. 1.00

L 69733 Frames 432-435 — Ethyl-beta-naphthylamine. In German. 1.00

L 69732 Frames 436-437 — Amino-J-acid. In German. 1.00

Frames 438-441 — These frames are illegible.

Frame 442 — This frame is missing due to faulty numbering.

L 69731 Frames 443-444 — Freund's acids. In German. 1.00

L 69730 Frame 445 — 2-Naphthylamine-1-sulfonic acid. In German. 1.00

L 69729 Frames 446-448 — 2-Naphthylamine-1-sulfonic acid. In German. 1.00

L 69728 Frames 449-457 — 2-Naphthylamine-6-sulfonic acid. In German. 1.00

Frames 458-483 — These frames are missing due to faulty numbering.

L 69727 Frames 484-487 — 2-Naphthylamine-6,8-disulfonic acid. In German. 1.00

L 69726 Frames 488-492 — 2-Naphthylamine-4,8-disulfonic acid. In German. 1.00

L 87237 Frames 493-497 — 1-Naphthylamine-4,8-disulfonic acid. In German. 2.00

L 69725 Frames 498-502 — 1-Naphthylamine-3,8-disulfonic acid. In German. 1.00

L 69724 Frames 503-507 — 1-Naphthylamine-5-sulfonic acid. In German. 1.00

L 69723 Frames 508-511 — 1-Naphthylamine-6-sulfonic acid. In German. 1.00

Dyes (contd)

L 69732 Frames 512-513 — 1-Naphthylamine-6-(or -7-) sulfonic acid. In German. 1.00

L 69721 Frames 514-527 — Cleve's acid. In German. 1.00

Frames 528-531 — These frames are illegible.

L 69720 Frames 532-534 — 1-Naphthylamine-7-sulfonic acid. In German. 1.00

L 69719 Frames 535-537 — 4'-Nitrobenzoyl-2-amino-5-naphthol-7-sulfonic acid. In German. 1.00

L 69718 Frames 538-540 — 4-Nitrobenzoylchloride. In German. 1.00

L 69717 Frames 541-543 — 1-Nitrobenzoyl-2,6-toluylene-diamine-4-sulfonic acid. In German. 1.00

L 69716 Frames 544-546 — 2-Nitrotoluene. In German. 1.00

Frames 547-553 — These frames are illegible.

L 69715 Frames 554-555 — Oxalylparamine. In German. 1.00

L 69714 Frames 556-557 — "Oxalyltolaminsaeure 26." In German. 1.00

L 69713 Frames 558-561 — Oleic acid chloride. In German. 1.00

L 87238 Frames 562-563 — Paraldehyde. In German. 2.00

L 87239 Frames 564-566 — O-phenetidine. In German. 2.00

L 69712 Frames 567-569 — 4-Phenetidine. In German. 1.00

L 87240 Frame 570 — 4'-Aminobenzoyl-1,4-phenylene-diamine. In German. 2.00

L 69711 Frames 571-572 — 2-Chloro-1,3-phenylene-diamine-5-sulfonic acid. In German. 1.00

Frames 573-577 — These frames are missing due to faulty numbering.

L 69710 Frame 578 — Analytical method for determining p-phenylenediamine. In German. 1.00

L 69709 Frames 579-585 — 1,3-Phenylenediamine. In German. 1.00

L 69708 Frames 586-587 — (Mono)-formyl-1,3-phenylene-diamine. In German. 1.00

L 69707 Frames 588-592 — 1,4-Phenylenediamine-sulfonic acid. In German. 1.00

L 69706 Frame 593 — Phenylhydrazine-2-sulfonic acid. In German. 1.00

Frames 594-597 — These frames are illegible.

L 69705 Frames 598-599 — "Benzaminsaeuresaeure." In German. 1.00

Frame 600 — This frame is illegible.

L 69704 Frames 601-603 — Tetramethyldiaminodiphenyl-carbinol. In German. Poor legibility. 1.00

L 69703 Frames 604-606 — Dehydrothio-4-toluidine. In German. Poor legibility. 1.00

L 69702 Frame 607 — "Thiotolvidindisaeure." In German. Poor legibility. 1.00

L 69701 Frames 608-609 — Dehydrothio-m-toluidine-mono-sulfonic acid. In German. Poor legibility. 1.00

L 69700 Frames 610-611 — Dehydrothioxylidine. In German. Poor legibility. 1.00

L 69699 Frame 612 — Determining the azo group with titanium trichloride. In German. 1.00

L 69698 Frames 613-617A — Triphenylmethane dyes. In German. 1.00

L 69697 Frames 618-622 — Quantitative analysis of azo dyes by reduction with titanium trichloride. In German. 1.00

L 69696 Frame 623 — Toluidine base. In German. 1.00

Frames 624-625 — These frames are illegible.

L 69695 Frames 626-627 — Toluidine (hydrochloric and sulfuric salt of). In German. 1.00

Frames 628-633 — These frames are illegible.

L 69694 Frame 634 — 1-Nitro-4-acetyltoluidine and 4-nitro-2-toluidine. In German. 1.00

Frames 635-638 — These frames are missing.

Frames 639-642 — These frames are illegible.

L 69693 Frames 643-645 — 2-Toluidine-5-sulfonic acid. In German. 1.00

L 69692 Frame 646 — 1-Toluidine. In German. 1.00

Frames 647-653 — These frames are illegible.

Frames 654-662 — These frames are missing due to faulty numbering.

Frames 663-667 — These frames are illegible.

L 69691 Frames 668-670 — Oleylmethyltaurine. In German. 1.00

Frames 671-675 — These frames are illegible.

Dyes (contd)

L 69690 Frame 675 p B	Meta-xylidine-sulfonic acid. In German.	1.00
L 69689 Frames 676-678	Nitrosylsulfuric acid. In German.	1.00
L 69688 Frame 679	Methylquinolene. In German.	1.00
Frames 680-689	These frames are missing due to faulty numbering.	
L 69687 Frames 690-693	Phosphorus hydroxychloride. In German.	1.00
L 69686 Frames 694-695	Toluene. In German.	1.00
L 69685 Frames 696-699	Ethyl ester of 4-toluene-sulfonic acid. In German.	1.00
L 69684 Frame 700	Diaminodiphenylmethane. In German.	1.00
L 69683 Frames 701-703	Xylene. In German.	1.00
L 69682 Frames 704-709	Ethylchloride (pure and technically pure). In German.	1.00
L 69681 Frames 710-713	Pyridine. In German.	1.00
L 69680 Frames 714-715	Rapidogen dyes. In German.	1.00
L 69679 Frames 716-718	Sarkosin. In German.	1.00
L 69678 Frames 719-729	Ethyleneoxide. In German.	1.00
L 69677 Frames 730-731	1-Hydroxydiphenylene-oxide-2-carboxylic acid. In German.	1.00
L 69676 Frame 732	Anisohydroquinone ether. In German.	1.00
L 69675 Frame 733	Nitrosalicylic acid. In German.	1.00
L 69674 Frames 734-738	o-Chlorophenol pure, extra pure, impure. In German.	1.00
Frames 739-744	These frames are illegible.	
L 69673 Frames 745-751	2,4-Dinitrophenol pure. In German.	1.00
L 69672 Frame 752	Purpuric acid. In German.	1.00
L 69671 Frames 753-756	Iron for reduction purposes. In German.	1.00
L 69833 Frames 757-773	Mono-di-trimethylamine and ammonia in one step; or mono-di-triethylamine and ammonia in one step. In German.	2.00
L 69670 Frames 774-775	Primulin sulfonic acid. In German.	1.00
L 69669 Frames 776-778	Chrysazin. In German.	1.00
L 69668 Frame 779	Analysis of chloroquinone. In German.	1.00
L 69667 Frames 780-781	2-Nitroanisol. In German.	1.00
L 69666 Frame 782	"Orangeamid" and "Rosaamid." In German.	1.00
L 69665 Frames 783-784	Sodium 2,3-hydroxynaphthoate. In German.	1.00
L 69664 Frame 785	"Naphtol AS-LB extra conc." In German.	1.00
L 69663 Frames 786-788	2-Naphthol-3-carboxylic acid. In German.	1.00
L 69662 Frames 789-791	2-Naphthol-3-carboxylic acid derivatives. In German.	1.00
L 69661 Frame 792	2-Naphthol-3-carboxylic acid anilide. In German.	1.00
L 69660 Frame 793	2-Naphthol-3-carboxylic acid-2'-toluidide. In German.	1.00
L 69659 Frame 794	2-Naphthol-2-carboxylic acid-2-anisidide. In German.	1.00
L 69658 Frame 795	2-Naphthol-3-carboxylic acid-4'-anisidide. In German.	1.00
L 69657 Frame 796	2-Naphthol-3-carboxylic acid-2'-phenetidide. In German.	1.00
L 69656 Frame 797	2-Naphthol-3-carboxylic acid-4'-chloroanilide. In German.	1.00
L 69654 Frames 798-799	2-Naphthol-3-carboxylic acid-5-chloro-2'-toluidide. In German.	1.00
L 69655 Frame 800	2-Naphthol-3-carboxylic acid-2',5'-dimethoxyanilide. In German.	1.00
L 69653 Frame 801	2-Naphthol-3-carboxylic acid-3'-nitranilide. In German.	1.00
L 69652 Frames 802-803	2-Naphthol-3-carboxylic acid-1'-naphthylamide. In German.	1.00
L 69651 Frame 804	2-Naphthol-3-carboxylic acid-2'-naphthylamide. In German.	1.00
L 69650 Frames 805-809	2-Hydroxyanthracene-3-carboxylic acid-2'-toluidide. In German.	1.00

L 69649 Frames 820-821 — General coupling method. In German. 1.00

Frames 822-827 — These frames are illegible.

L 69648 Frame 828 — "Natriumsulfhydratlauge." In German. 1.00

L 69647 Frame 829 — 1.(3'-Aminophenyl)-5-pyrazolone-3-carboxylic acid. M. 219. In German. 1.00

L 69646 Frames 830-831 — 2-Anisidine-4-sulfonic acid. In German. 1.00

Frame 832 — This frame is illegible.

L 69645 Frames 833-834 — Determining aromatic bases in urine. In German. 1.00

L 69644 Frames 835-839 — 1-Amino-8-naphthol-3,6-disulfonic acid H. In German. 1.00

L 69643 Frame 840 — 2-Amino-5-naphthol-7-sulfonic acid (aminonaphthol J, amino-naphtholsulfonic acid J). In German. 1.00

L 69642 Frames 841-842 — 2-Amino-8-naphthol-6-sulfonic acid (aminonaphthol G, amino-naphtholsulfonic acid G, gamma acid). In German. 1.00

L 69641 Frames 843-844 — 1,8-Dihydroxynaphthalene-3,6-disulfonic acid. In German. 1.00

L 69640 Frame 845 — Naphthalene-monosulfonic acid. In German. 1.00

L 69639 Frames 846-848 — Determination of naphthalene-monosulfonic acid and naphthalene-disulfonic acid in one step. In German. 1.00

L 69638 Frames 849-851 — 2-Naphthol-6-sulfonic acid in R salt. In German. 1.00

L 69637 Frames 852-853 — 2-Naphthylamine-5,7-disulfonic acid (amino-J-acid). In German. 1.00

L 69636 Frame 854 — 2-Naphthylamine-6,8-disulfonic acid (amino-G-acid). In German. 1.00

Frames 855-857 — These frames are missing.

L 69635 Frame 858 — 1-Naphthylamine-3,6,8-trisulfonic acid. In German. 1.00

L 69634 Frames 859-860 — Tetramethyldiaminodiphenyl-carbinol ("Hydrol"). In German. 1.00

L 69877 — Analytical procedures for intermediates and organic products, as disclosed through T.B.A. Büro documents. (Index) 2.00

PB L 17677. I.G. FARBENINDUSTRIE A.G. Reports of the 6th and 7th meetings of the Azo Dyes Commission (Ako), Dec 1933 and Jul 1934. (FIAT Microfilm Reel C 88, Frames 1-890) 1933-1934. 1101 f. Price: Microfilm-$6.00 - Enlargement Print-$110.50

233 individual items of the FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give the above PB number and the frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1-22 PB L 17677	List of reports for the 6th meeting of the Scientific Azo Dyes Commission on the 19th and 20th of December, 1933. In German.	$2.50
23-25 PB L 17677	Reports from Ludwigshafen. In German.	1.50
26-30 PB L 17677	On dyes for fishing yarn. In German.	1.50
31-35 PB L 17677	Tetrahydroxyethyl-m-phenylenediamine as a component for azo dyes. In German.	1.50
36-39 PB L 17677	A blue for acetate rayon. In German.	1.50
40-51 PB L 17677	Secondary diazo dyes for acetate rayon, with aromatic oxalkylated amines as end components. In German.	1.50
52-56 PB L 17677	The use of aminodihydroxyquinoline and its substitution products. In German.	1.50
57-61 PB L 17677	An examination of the acetate rayon dyes of our competitors. In German.	1.50
62-67 PB L 17677	On 2,3-hydroxynaphthoylacetanilide and on a relationship between constitution and substantivity of naphthols. In German.	1.50
68-75 PB L 17677	"Orange II" - non-foaming. In German.	1.50
76-100 PB L 17677	On the coupling of diazometanilic acid to the diphenylamine. Attempts to improve the yield of "Metanil Yellow" extra. In German.	2.50
101-111 PB L 17677	Research in the field of "quinoline yellow" dyes. In German.	1.50
112-114 PB L 17677	Morpholine as basis for some wool and acetate rayon dyes. In German.	1.50
115-118 PB L 17677	On acid dyes from 1-phenyl-5-pyrazolone-3-carboxylic acid amide. In German.	1.50
119-123 PB L 17677	On azo dyes derived from phenylethyl alcohol. In German.	1.50
124-130 PB L 17677	Hydroxypyrones and hydroxypyridones as coupling components. In German.	1.50
131-135 PB L 17677	Azo dyes of the hydroxy quinoline II series. In German.	1.50
136-141 PB L 17677	Metachrome Orange 4 R L - Acid alizarin red G N - Acid alizarin Bordeaux B - their production in the laboratory and on a commercial scale. In German.	1.50
142-145 PB L 17677	Condensation products of ketones with phenols as components for azo dyes. In German.	1.50
146-152 PB L 17677	The production of Palatinecht Bordeaux B N in the laboratory and on a commercial scale. In German.	1.50
153-163 PB L 17677	The production of Palatinecht Orange RN in the laboratory and on a commercial scale. In German.	1.50
164-169 PB L 17677	The production of Palatinecht Red B N in the laboratory and on a commercial scale. In German.	1.50

Dyes (contd)

170-176 PB L 17677 — The production of Palatinecht Blue-black B N in the laboratory and on a commercial scale. In German. 1.50

177-180 PB L 17677 — The production of Neutral Blue HB - Ergan Indigo Blue R in the laboratory and on a commercial scale. In German. 1.50

181-183 PB L 17677 — The utilization of sulfonic acid derivatives of 1.3-diaryl-5-pyrazolones for the production of Palatinecht dyes. In German. 1.50

184-189 PB L 17677 — Research work on Palatinecht yellow dyes. In German. 1.50

190-193 PB L 17677 — The use of complex compounds formed from basic dyes and Palatinecht dyes in the field of textile dyeing. In German. 1.50

194-198 PB L 17677 — Experiments for the production of a uniform Palatinecht Navy Blue. In German. 1.50

199-209 PB L 17677 — Solvent-fast azo dyes for lacquering. In German. 1.50

210-223 PB L 17677 — Research work in the field of vulcan dyes. In German. 1.50

224-228 PB L 17677 — The production of Zaponecht Black N C in the laboratory and on a commercial scale. In German. 1.50

229-247 PB L 17677 — X-rays as a method of testing organic compounds. In German. 1.50

248-248A PB L 17677 — Reports from Leverkusen. In German. 1.50

249-257 PB L 17677 — Cotton dyes from "Bromaminsäure." In German. 1.50

258-259A PB L 17677 — Experiments on Sirius Light Violet BL. (A new covering process). In German. 1.50

260 PB L 17677 — Cotton dyes containing copper. In German. 1.50

261 PB L 17677 — Substantive cotton dyestuffs. In German. 1.50

262-263 PB L 17677 — New ideas in the production of Diamond Black base. In German. 1.50

264-265 PB L 17677 — Leather dyes. In German. 1.50

266 PB L 17677 — Chrome-developed dyes. In German. 1.50

267-268 PB L 17677 — Research work on the Direct Deep Black series. In German. 1.50

269 PB L 17677 — A contribution to the improvement of alpha-naphthylamine couplings. In German. 1.50

270 PB L 17677 — Cotton dyes. In German. 1.50

271 PB L 17677 — Lacquer dyes. In German. 1.50

272 PB L 17677 — Wool and silk. In German. 1.50

273 PB L 17677 — Experiments for the preparation of coppered gray cotton dyes. In German. 1.50

274 PB L 17677 — Experiments on Cotton Black AAG as a Para black dyestuff. In German. 1.50

275-276 PB L 17677 — 5-Nitro-1.3-phenylenediamine-4-sulfonic acid for leather dyes. In German. 1.50

277 PB L 17677 — On the decomposition of sulfonic cyanines during boiling. In German. 1.50

278-279 PB L 17677 — Chrome Sulfonic Black BSP. In German. 1.50

280 PB L 17677 — Experiments in the Polar Red series. In German. 1.50

281-282 PB L 17677 — On anthracene-chromate brown RS. In German. 1.50

283-284 PB L 17677 — Brillant sulfonic-azurine dyes. In German. 1.50

285-286 PB L 17677 — N - bases with hydroxyhydrocarbon groups as coupling components. In German. 1.50

287 PB L 17677 — Resorcin of coupling. In German. 1.50

288 PB L 17677 — On the use of distributors in the synthesis of azo dyes. In German. 1.50

289-290 PB L 17677 — On some dyes produced from 2.4-dichloraniline-6-sulfonic acid. In German. 1.50

291 PB L 17677 — Improvement in the process for producing Sirius light brown G. In German. 1.50

292 PB L 17677 — The determination of diazotation values. In German. 1.50

293 PB L 17677 — 4-amino-4'-hydroxydiphenyl and 4-amino-4'-hydroxydiphenyl-3'-carboxylic acid. Examination of their usability as diazotation components. In German. 1.50

294 PB L 17677 — Some aminoacetophenones and their suitability as diazotation components. In German. 1.50

295 PB L 17677 — Derivatives of diphenylamine as Naphthol-AS-bases. In German. 1.50

296-297 PB L 17677 — Some derivatives of 1-phenyl-2.3-benzotriazole and their use for making azo dyestuffs. In German. 1.50

298 PB L 17677 — Acetate rayon dyes. In German. 1.50

299-300 PB L 17677 — Cotton - diazotation dyes. In German. 1.50

301 PB L 17677 — Direct cotton dyes. In German. 1.50

302 PB L 17677 — List of dyestuffs produced by competitors. In German. 1.50

303 PB L 17677 — The tetrazotization of "Benzidin-disaure 2." In German. 1.50

304-305 PB L 17677 — The utilization of pyridine for the determination of end point couplings. In German. 1.50

306-315 PB L 17677 — On the question of diazo light yellow. In German. 1.50

316-317 PB L 17677 — Diazo brilliant blue 2 BLA. In German. 1.50

318 PB L 17677 — Acidic wool dyes. In German. 1.50

319 PB L 17677 — Direct Deep Black E - extra. In German. 1.50

Dyes (contd)

320 PB L 17677 — Direct cotton dyes. In German. 1.50

320A PB L 17677 — A new dyestuff - of no special interest. In German. 1.50

321 PB L 17677 — Dyes containing copper. In German. 1.50

322 PB L 17677 — Patent research. In German. 1.50

323-324 PB L 17677 — Further research on 1-acetylamino-3-aminobenzene-4-sulfethylanilide. In German. 1.50

325-329 PB L 17677 — Brown diphenylamine condensation products soluble in water. In German. 1.50

330-332 PB L 17677 — Some new bases for "Supranol" dyes. In German. 1.50

333-334 PB L 17677 — Lacquer dyes from 5-nitroanthranilic acid. In German. 1.50

335 PB L 17677 — Reports from Leverkusen. In German. 1.50

336-346 PB L 17677 — On the capability of reaction of halogens in azo dyestuffs. In German. 1.50

347-350 PB L 17677 — On the reaction of diazo compounds with aldehydes and ketones. In German. 1.50

351-356 PB L 17677 — On o-aminoazo dyestuffs. In German. 1.50

357 PB L 17677 — On Palatinecht dyes from the methylpyrazolone of 4,6-dichloroaniline-2-sulfonic acid. 11th Report. In German. 1.50

358 PB L 17677 — New Sirius yellow dischargeable after application. In German. 1.50

359-361 PB L 17677 — On the sulfurous ester of 1,6-aminonaphthol as intermediate component in secondary triazo dyestuffs. In German. 1.50

362-363 PB L 17677 — On new members of the Sirius Light Red series. In German. 1.50

364-365 PB L 17677 — Sirius Grays fast to boiling. In German. 1.50

366-368 PB L 17677 — Azo dyestuffs from azoanthranilic acid and azometaminobenzoic acid. In German. 1.50

369-370 PB L 17677 — Experiments on Hansa Yellow. In German. 1.50

371-372 PB L 17677 — On the usability of various diazoamino compounds for "Rapidogen" print, especially those from cyanamide. In German. 1.50

373 PB L 17677 — Reports from Mainkur. In German. 1.50

374-379 PB L 17677 — Aliphatic- and cycloaliphatic substituted aromatic bases for the synthesis of azo dyestuffs. In German. 1.50

380-384 PB L 17677 — Pyrazolones of the benzothiazole series. In German. 1.50

385-392 PB L 17677 — Light-fast acidic wool dyes of recent date. In German. 1.50

393-396 PB L 17677 — Wool dyes from derivatives of beta-aminoanthracene. In German. 1.50

397-410 PB L 17677 — Yellow diazotation dyestuffs. In German. 1.50

411-415 PB L 17677 — On Formaldehyde Black fast to light. In German. 1.50

416-424 PB L 17677 — On stilbene dyestuffs fast to light. In German. 1.50

425 PB L 17677 — Light fast chrome dyes from acyl-aminoanthranilic acids. In German. 1.50

426 PB L 17677 — Reports from Ffm.-Höchst. In German. 1.50

427-433 PB L 17677 — More recent Supramine dyestuffs of our competitors. In German. 1.50

434-440 PB L 17677 — Dyestuffs from 1-aryl-4-pyrazolone-3-carboxylic acid, and from their esters and arylides. In German. 1.50

441-445 PB L 17677 — On dyes from aminobenzoylbenzoic acid. In German. 1.50

446-447 PB L 17677 — On the influence of the urethane group in diazo components. In German. 1.50

448-450 PB L 17677 — Comparison regarding fastness to light between ortho-and para-aminodiphenyl ether dyes. In German. 1.50

451-457 PB L 17677 — On yellow and red after chrome dyes. In German. 1.50

458-464 PB L 17677 — On metachrome dyes. In German. 1.50

465-471 PB L 17677 — On chrome compounds of pyrazolone azo dyes of the general structure o-aminobenzoic acid converted to aryl-pyrazolone. In German. 1.50

472-475 PB L 17677 — On chrome compounds of pyrazolone azo dyestuffs of the general structure: o-aminophenols (-naphthols) --> 1-aryl-3-aryl-5-pyrazolone and o-aminophenols (-naphthols) --> alkyl esters of 1-aryl-5-pyrazolone-3-carboxylic acid. In German. 1.50

476-481 PB L 17677 — On precipitable yellow lacquer dyestuffs fast to washing. In German. 1.50

482-486 PB L 17677 — Influence of alkylation of pyrazolone in various fields of dyestuffs. In German. 1.50

487-490 PB L 17677 — On the substitution of halogens that are in o-position to the azo group, by alkoxy groups. In German. 1.50

491 PB L 17677 — Reports from Wolfen. In German. 1.50

492 PB L 17677 — 6-Bromo-(chloro)2,4-dicyanoaniline as an active component for wool dyes. In German. 1.50

493 PB L 17677 — Wool dyes with the nitrated diazo compound of H-acid as an active component. In German. 1.50

494 PB L 17677 — Wool dyes with hydroxyalkyl-substituted bases, particularly those of the type of Lanoyl Violet "B." In German. 1.50

495 PB L 17677 — Substitution of Schaeffer salt by 2-naphthol-4-sulfonic acid. In German. 1.50

496-503 PB L 17677 — Research on leather dyestuffs. In German. 1.50

504-512 PB L 17677 — Research on metachrome dyes. In German. 1.50

513 PB L 17677 — The instableness of diazotized trichloro-o-aminophenol. In German. 1.50

514 PB L 17677 — Derivatives of pyridine as coupling components. In German. 1.50

515 PB L 17677 — Secondary violet dyes and Paranil dyestuffs. In German. 1.50

516 PB L 17677 — Diazotation dyestuffs from mono-acetobenzidine. In German. 1.50

517-522 PB L 17677 — Research on acetate rayon dyes. In German. 1.50

523-525 PB L 17677 — On the dispersion of Cellitol dyes in iron milling drums. In German. 1.50

526-529 PB L 17677 — Research on Sudan dyes. Mono-azo dyes. In German. 1.50

530-531 PB L 17677 — More recent research in the Sudanecht series. In German. 1.50

532-549 PB L 17677 — Reports from Individual I.G Plants for for the 7th Meeting of the Scientific Azo Dyes Commission on the 3rd and 4th of July 1934. In German. 2.00

550-551 PB L 17677 — Reports from Ludwigshafen. In German. 1.50

552-561 PB L 17677 — Aromatic amines containing and SCN-radical and dyes therefrom. In German. 1.50

562-565 PB L 17677 — Experiments aiming at the production of yellow silk dyes with the help of the sulfonic acids of 4,4'-diamino-dinhanyl ether. In German.

566-571 PB L 17677 — The use of hydroxyphenyl imides of di-carboxylic acids as coupling components for azo dyes capable of being chrome-developed. In German. 1.50

572-576 PB L 17677 — Experiments aiming at the production of dyes with similar properties as "Eriochromblau GGK" (GEIGY). In German. 1.50

577-584 PB L 17677 — Production of an uniform "Palatinecht Navy Blue." In German. 1.50

585-593 PB L 17677 — Experiments with "Neolan Navy Blue M G conc. (Ciba). In German. 1.50

594-596 PB L 17677 — Silk Gray 785. In German. 1.50

597-601 PB L 17677 — The production of 2:3-chromium complex compounds by the reaction of 1:1 complex compounds on azo dyes capable of being chrome-developed that do not contain any solubilizing radicals. In German. 1.50

602-605 PB L 17677 — Metal-containing dyes of the 8-hydroxy-quinoline series. In German. 1.50

606-610 PB L 17677 — Further research into the field of demethylating chroming III. In German. 1.50

611-615 PB L 17677 — Hydroxyethylated azo dyes that are etherified. In German. 1.50

616-619 PB L 17677 — 6-chloro-2,4-dinitroaniline and acetate rayon dyes therefrom. In German. 1.50

620-623 PB L 17677 — 5-Nitro-2-aminophenol as diazo component for acetate rayon dyes. In German. 1.50

624-626 PB L 17677 — N-methyl-N-alkyl-arylamines as coupling components for acetate rayon dyes. In German. 1.50

627-632 PB L 17677 — N-arylaminocarboxylic acid nitriles as coupling agents for acetate rayon dyes. In German. 1.50

633-635 PB L 17677 — Suitability of substituted quinone phthalones for dyeing acetate rayon. In German. 1.50

636-639 PB L 17677 — Acetate rayon printing dyes from sulfonated dihydroxyquinolines. In German. 1.50

640-642 PB L 17677 — Improvement of the powder quality of Vulcan dyes. In German. 1.50

643-645 PB L 17677 — Vulcanecht blue R F. In German. 1.50

646-647 PB L 17677 — Reports from Höchst. In German. 1.50

648-655 PB L 17677 — Wool and cotton azo dyes from amino-pyrene and aminochrysene. In German. 1.50

656-660 PB L 17677 — The influence of some Supramine bases on the intensity of the dye. In German. 1.50

661-662 PB L 17677 — Azo dyes from o-sulfonic acids of diaminodiaryls. In German. 1.50

663-665 PB L 17677 — Dyes of the "Ericechtblau 7RL" type. In German. 1.50

666-670 PB L 17677 — Brown nitro dyes for wool. In German. 1.50

671-673 PB L 17677 — Leather dyes. In German. 1.50

674-686 PB L 17677 — Yellow and red "Palatinecht" dyes on a pyrazolone basis. In German. 1.50

687-689 PB L 17677 — Some metachrome dyes. In German. 1.50

690-696 PB L 17677 — Yellow dyes of the anphthalic acid series capable of being chrome-developed. In German. 1.50

697-699 PB L 17677 — Water-soluble cellitazoles. In German. 1.50

700-703 PB L 17677 — Some acetate rayon dyes. In German. 1.50

704-707 PB L 17677 — "Vulkanecht" dyes in a new powder form. In German. 1.50

708-710 PB L 17677 — Diazotization of 2,4-dinitroaniline and coupling it with beta-narhthol. In German. 1.50

711-712 PB L 17677 — Contribution to the knowledge of the coupling reaction ("Stabilizers"). In German. 1.50

713-714 PB L 17677 — Lacquer dyes from aminopyrene, amino-chrysene and sulfonic acids of same. In German. 1.50

715-732 PB L 17677 — Requirements in the field of wool dyes with special regard to azo dyes. In German. 1.50

733-734 PB L 17677 — Reports from Leverkusen. Azo-Department. In German. 1.50

735 PB L 17677 — Leather dyes. In German. 1.50

736 PB L 17677 — Investigation of competitive products. In German. 1.50

737-738 PB L 17677 — Diazo navy blue R. In German. 1.50

739-740 PB L 17677 — "Naphtamingecht brown N Z R." In German. 1.50

741-742 PB L 17677 — Preventing the formation of byproducts in the production of certain azo dyes. In German. 1.50

743 PB L 17677 — The use of aminobenzylsulfonic acid as a diazotation component. In German. 1.50

744-745 PB L 17677 — Ethers of 1-amino 2,6-dihydroxynaphthalene as intermediates. In German. 1.50

746-747 PB L 17677 — Effect on acetate rayon in dyeing with Sirius Light Red Violet 2 BL. In German. 1.50

748-751 PB L 17677 — Experiments in the Green and Blue series of the direct cotton dyes. In German. 1.50

752-755 PB L 17677 — Testing 1,4-phenylenediamine-2,5-disulfonic acid and its derivatives for their suitability as diazotation components. In German. 1.50

756-757 PB L 17677 — Experiments aiming at the preparation of (new) acetate rayon dyes. In German. 1.50

758 PB L 17677 — Testing some new diazotation components as to their suitability for acidic wool and lacquer dyes. In German. 1.50

759-760 PB L 17677 — Composition of competitive dyes. In German. 1.50

761 PB L 17677 — Diazotation dyes. In German. 1.50

762 PB L 17677 — Direct cotton dyes. In German. 1.50

763 PB L 17677 — Azosalicylic acid. In German. 1.50

764-770 PB L 17677 — New diazo and para dyes. In German. 1.50

771-774 PB L 17677 — Method for the preparation of azo dyes which are difficult to obtain by usual methods. In German. 1.50

775-776 PB L 17677 — Preparation of direct dyes dischargeable after application. In German. 1.50

777-778 PB L 17677 — Dyes-developed secondarily. In German. 1.50

779 PB L 17677 — Cotton. In German. 1.50

780 PB L 17677 — Cotton (general) In German. 1.50

781-782 PB L 17677 — Cotton dyes. "Columbiasecht black G extra." In German. 1.50

783 PB L 17677 — Acidic wool dyes. In German. 1.50

784 PB L 17677 — Investigation of the French Patent 760025 (Duran & Huguenin). In German. 1.50

785 PB L 17677 — Leather dyes. In German. 1.50

786 PB L 17677 — Cotton dyes. In German. 1.50

787 PB L 17677 — Acetate rayon dyes. In German. 1.50

788 PB L 17677 — Cotton dyes. Oxanic acid brown G. In German. 1.50

789 PB L 17677 — Benzochrome brown. In German. 1.50

790-793 PB L 17677 — Dyes derivatives for the Sirius Light Red series. In German. 1.50

794 PB L 17677 — Cotton dyes. In German. 1.50

795 PB L 17677 — Wool dyes. In German. 1.50

796 PB L 17677 — Intermediate products. In German. 1.50

797-799 PB L 17677 — Violet and blue Sunrasine dyes. In German. 1.50

800 PB L 17677 — Verification of a Ciba Patent for the preparation of acidic wool dyes. In German. 1.50

801-802 PB L 17677 — Further research on Sunrasine brown. In German. 1.50

803-804 PB L 17677 — Industrial production of "p-acetylgoldanilid." In German. 1.50

805-806 PB L 17677 — Various chrome lacquers. In German. 1.50

807 PB L 17677 — Acid leather black. In German. 1.50

808 PB L 17677 — Reasearch into the direct Deep Black series. In German.

809-810 PB L 17677 — Red Sirius light dyes. In German. 1.50

811 PB L 17677 — Reports from Leverkusen. Scientific Laboratory. In German. 1.50

812 PB L 17677 — Hydroxychrysene as coupling component for azo dyes. In German. 1.50

813 PB L 17677 — Azo dyes for wool, prepared with 3-hydroxydiphenylene oxide or sulfide as coupling component. In German. 1.50

814 PB L 17677 — 1-Amino-2-hydroxycarbazole-3,6,8-trisulfonic acid as diazotization component for azo dyes capable of being chrome developed. In German. 1.50

815-816 PB L 17677 — Diazo dyes form 2,2'-diaminodiaryls. In German. 1.50

817-819 PB L 17677 — Reduction of 4'-nitromono azo dyes to the azo or azoxy stage. In German. 1.50

820-826 PB L 17677 — Chrome-developed dyes from 2'-hydroxy-4,5-benzobenzazole as coupling components. In German. 1.50

827-829 PB L 17677 — o-Amino azo dyes. II. In German. 1.50

830-831 PB L 17677 — o-Amino azo dyes III. (Chrome complexes). In German. 1.50

832-834 PB L 17677 — Azo dyes from 2-aminothiazoles as diazotation components. In German. 1.50

835-836 PB L 17677 — Reports from Wolfen. In German. 1.50

837-838 PB L 17677 — Wool dyes from tetrahydrohydroxyquinoline bases. In German. 1.50

839-842 PB L 17677 — Research work on metachrome dyes. In German. 1.50

843-847 PB L 17677 — Research on the capability of being chrome-developed of o-hydroxyazo dyes. In German. 1.50

848-853 PB L 17677 — Research on acetate rayon dyes. In German. 1.50

Dyes (contd)

854-856 PB L 17677 — Acetate rayon dyes from diazotized nitro-p-phenylenediamine. In German. 1.50

857-868 PB L 17677 — Summary of the research performed in Wolfen in the field of Calliton dyes. In German. 1.50

869-877 PB L 17677 — Research on Sudan dyes. In German. 1.50

878-880 PB L 17677 — Preparation of fat dyes of the azo series in the presence of dispersing agents. In German. 1.50

881-888 PB L 17677 — Research on acid leather dyes. In German. 1.50

889 PB L 17677 — Recent observations on the connection between the purity of intermediate products and the yield of dyes. (Illegible) In German. 1.50

890 PB L 17677 — Influence of the composition of Cleve acid on "Oxydiaminogen ED." In German. 1.50

Chemical Engineering and Equipment

PB L 61564. DEUTSCHE SEEWARTE GRUPPE, W/J., HAMBURG, GERMANY. High-pressure hydrogen generator of the German Naval Observatory (DS pressure gas-producer) type A and K; description and operating instructions. Jan 1944. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00
This manual covers type A generators for filling radiosonde balloons (1 m^3 capacity) and type K generators for filling meteorological balloons (900 liter capacity). Drawings and parts lists are included. In German.

PB L 7736-82. FLIESS, S. Visit to Tornesch, from 21 to 25, April 1944. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Aug 1944. 17 p. Price: Microfilm-$1.00 - Photostat-$2.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. A detailed description of percolators and control equipment and directions for the percolation are presented. An English translation accompanies the German text.

PB L 7736-85. KARSCH, K. Regarding a visit to the wood saccharification plant of the Schweizerische Holzverzuckerungs A. G. at Ems, Graubünden. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Feb 1944. 19 p. Price: Microfilm-$1.00 - Photostat-$2.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. Equipment and operation of the above installation are described in detail. An English translation accompanies the German text.

PB L 7736-86. FLIESS, S. The problem of machinery corrosion in the wood saccharification industry. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Jan 1939. 16 p. Price: Microfilm-$1.00 - Photostat-$2.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. The report deals chiefly with the properties of raw materials which should be used in the construction of the equipment. In German and English.

PB L 87109. HOLZ, HERMAN A. Filtering media in Germany. n. d. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
Nine targets were investigated in order to ascertain whether Germany during the war had improved their production of filter papers and similar filter media. An individual report is presented for each target visited; from these reports it appears that Germany had not made any progress in methods for testing of filtering and other absorbent paper, was still using hand labor in many operations performed in U. S. A. by machinery and had not made any progress in the development of machinery for die-cutting of circles.

PB L 55997. I. G. FARBENINDUSTRIE A. G., FRANKFURT AM MAIN, GERMANY. Index of technical drawings for the Hoechst works of I. G. Farben. (FIAT Microfilm Reel AA115, Frames 1-130). 1921-1945. 133 f. Price: Microfilm-$2.25 - Enlargement Print-$13.50
This reel is a handwritten listing of Hoechst process drawings giving drawing number, title, operation in which the equipment occurs, building in which located and date. Some of the frames on the reel will not reproduce well.

PB L 7736-8. LUDEWIG, H. Control apparatus used in the wood saccharification plant at Dessau. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Oct 1942. 40 p. Price: Microfilm-$1.00 - Photostat-$3.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. Successful functioning of the process of percolation is dependent on certain pressures and temperatures in the percolator. For their control a spacious upper and lower service gallery was installed from which the measuring gear for each individual percolator could be serviced. A detailed description of the various measuring apparatus is given and illustrated with 33 photographs and diagrams. An English translation accompanies the German text.

PB L 7736-810. TECHNISCHES BÜRO PERCOLA G.M.B.H., MUNICH, GERMANY. Data for the calculation of profitableness of the production of alcohol, crystallized dextrose, yeast from waste liquor, and furfural from wood as raw material according to Scholler. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Jan 1942. 63 p. Price: Microfilm-$2.00 - Photostat-$5.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. A cost outlay for the installation and operation of various types of plants is presented. A questionnaire and a number of flow sheets and technical drawings are included. In German.

Miscellaneous Chemicals

PB L 67696-8. HOPKINS, H. H. and SCHLIEBEN, W. A. VON. Manufacture of phthalic anhydride by I. G. Farbenindustrie. (Supplement I to Phthalic anhydride, manufactured by I. G. Farbenindustrie, Uerdingen, by O. J. Grummitt and others, PB 67696). (FIAT Final Rept 984, Supp 1). Sep 1947. 16 p. Price: Mimeo-$0.50
This report is a supplement to PB 67696, vol. 5, p. 965, this Bibliography, and describes a converter for a unit with a capacity of 150-200 tons per month which is considerably larger than usual and therefore, should be of interest to American manufacturers. Bibliography and drawing are attached.

PB L 19928. I.G. FARBENINDUSTRIE A.G. Documents, drawings and reports on production of elements (Na, Mg,

Ca,P,Cl), acids, bases, salts, alkohols, fertilizers, etc, with various important by-products. (FIAT Microfilm Reel G 138, Frames 1-716). Mar 1946. 717 f.
Price: Microfilm-$6.00 - Enlargement Print-$72.00.
The 25 individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give the above PB number and the frame numbers when ordering individual items from this microfilm reel. In German. Most of the reports include an English translation. The greater part of the drawings will not reproduce well.

Frames	Title	Price
1 - 6 PB L 19928	Electrolysis of hydrochloric acid. In German.	1.50
7 PB L 19928	Tunnel furnace for calcium cyanamide. In German.	1.50
8 - 11 PB L 19928	Spray installations for making fertilizers in pill form. In German.	1.50
12 - 84 PB L 19928	Production of magnesium. In German.	7.50
85 - 108 PB L 19928	Manufacture of metallic calcium. In German.	2.50
109 - 133 PB L 19928	Graphite electrodes. In German.	2.50
134 - 177 PB L 19928	Contact rectifier. In German. Partly illegible.	4.50
178 - 214 PB L 19928	Nitric acid 40-50%. In German.	4.00
215 - 244 PB L 19928	Chlorine electrolysis, caustic soda, hydrogen compression and bleaching. In German.	3.00
245 - 284 PB L 19928	Production of sodium and potassium chlorates. In German.	4.00
285 - 288 PB L 19928	Amalgam plant Bitterfeld. In German.	1.50
289 - 355 PB L 19928	Fertilizer process at Leuna. In German.	7.00
356 - 455 PB L 19928	Potassium permanganate and manganese chloride. In German.	10.00
456 - 472 PB L 19928	Cyanide process. In German.	2.00
473 - 478 PB L 19928	Production of formic acid. In German.	1.50
479 - 498 PB L 19928	Polymerization of chloroprene. In German.	2.00
499 - 513 PB L 19928	Sulfigran process at Wolfen. In German.	1.50
514 - 561 PB L 19928	Production of sulfuric acid from gypsum, with portland cement as by-product. In German.	5.00
562 - 568 PB L 19928	Production of methanol. In German.	1.50
569 - 590 PB L 19928	Ammonia converter and high pressure installations at Merseburg. In German.	2.50
591 - 655 PB L 19928	Production of phosphorus, phosphoric acid and calcium cyanamide at Bayerische Stickstoffwerke plant, Piesteritz. In German. Partly illegible.	6.50
656 - 659 PB L 19928	Isobutanol. In German.	1.50
660 - 665 PB L 19928	Carbon tetrachloride plant Bitterfeld. In German.	1.50
666 - 690 PB L 19928	Production of calcium hypochlorite and calcium chloride. In German.	2.50
691 - 716 PB L 19928	Production of sodium hypochlorite. In German.	3.00

PB L 76032-6-2. I. G. FARBENINDUSTRIE A. G. Phenol manufacture in Germany by the chlorination, sulfonation, and Raschig processes. Drawings. (FIAT Final Rept 768, Supp.; MC 540 A; MC 540 B; 540 C; 540 D; 540 E; 540 F; 540 G; 540 H; 540 I; 540 K; 540 L; 540 M; 540 N). n. d. 45 p.
Price: Microfilm-$1.00 - Photostat-$3.00
FIAT Final Report 768, PB 76032 (described on page 664, vol. 5 of this Bibliography), lists on its page 42, appendix 4, drawings of the apparatus used. These drawings constitute the present item. Each drawing has an identifying title in English. Legends on some of the drawings are in English.

PB L 20853. I.G. FARBENINDUSTRIE A.G. Reports on meetings of wool technicians, Jan 1936; Reports on meeting of colorists at Leverkusen, 1937; New dyes and detergents, 1936-1942. (FIAT Microfilm Reel C 114, Frames 1-590) 1936-1942. 590 f. Price: Microfilm-$6.00 - Enlargement Print-$59.00
This FIAT microfilm reel contains 67 discussions of, and descriptions of processes for dyes, detergents, and textile aids. Individual items, listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering and individual report. All reports are in German.

PB Numbers Frames	Title	Price
	Reports at meeting of wool-technicians at Hoechst a/M. 1-20/21-36.	
L 66970 Frames 1-25	Acid dyestuffs. By Curlt. 1936. In German.	$2.00
L 66971 Frames 26-42	Progress in the field of chrome fast dyes. By L. Jackel. 1936. In German.	2.00
L 66972 Frames 43-54	Chrome black. By Kistermann. 1936. In German.	1.00
L 66973 Frames 55-70	Problems in the production of cloth for military and official purposes. By Schaaf. 1936. In German.	2.00
L 66974 Frames 71-80	New competing dyes in the field of wool dyeing. I. Acid dyestuffs. By Naumann. 1936. In German.	1.00
L 66975 Frames 81-88	New competing dyes in the field of wool dyeing. II. Chrome fast dyes. By Naumann. 1936. In German.	1.00
L 66976 Frames 89-107	Dye-technical problems in the field of substitute and mixed fibers. By Haynn. 1936. In German.	2.00
L 66977 Frames 108-114	Naphthol AS on mixed fibers and textiles. By Kirst. 1936. In German.	1.00
L 66978 Frames 115-125	Vat dyes on mixed fibers. By Prasse. 1936. In German.	1.00
L 66979 Frames 126-142	New experiences and products for washing and fulling processes. By Gutensohn. 1936. In German.	2.00
L 66980 Frames 143-161	Impregnating agents for wool and mixed textiles and their testing. By Vogt. 1936. In German.	2.00

Miscellaneous Chemicals (contd)

L 66981 Frames 162-181 Textile auxiliaries of competitors in the field of wool manufacture. By Schulz. 1936. In German. 2.00

L 66982 Frames 182-194 "Eulan." By Hermann II. 1936. In German. 1.00

Reports on 1937 meeting of colorists at Leverkusen.

L 66983 Frames 195-205 Dyeing of cellulose wool and mixtures of cellulose wool with cotton or with rayon. By Köster. 1937. In German. 1.00

L 66984 Frames 206-218 Printing of cellulose wool and mixtures of cellulose wool with cotton. By Hasse. 1937. In German. 1.00

L 66985 Frames 219-233 Dyeing of loose materials and yarn (weaving and knitting yarn) from wool with cellulose wool. By Gurlt. 1937. In German. 1.00

L 66986 Frames 234-238 Utilization of cellulose wool in related fields of the textile industry (carpet, plush industry, and hat manufacture). By Gurlt. 1937. In German. 1.00

L 66987 Frames 239-265 Dyeing of light fancy materials, heavy men's and ladies' suiting, and ordnance cloth. By Raynn. 1937. In German. 2.00

L 66988 Frames 266-280 Naphthol AS on mixed fibers from wool and artificial or natural cellulose fibers. By Kirst. 1937. In German. 1.00

L 66989 Frames 281-291 The finishing of cellulose wool and its mixtures with cotton and rayon. By Hintzmann. 1937. In German. 1.00

L 66990 Frames 292-313 Cellulose wool in mixture with wool; finishing, sulanising, water-proofing. By Jochum. 1937. In German. 2.00

L 66991 Frames 314-323 Water softening, or hardness-resisting textile aids? By Schwen. 1937. In German. 1.00

L 66992 Frames 324-345 Igepons and fatty-alcohol sulphonates. By Gutmann. 1937. In German. 2.00

L 66993 Frames 346-351 "Solidogens." By Starck. In German. 1.00

L 66994 Frames 352-355 The miscibility of our textile auxiliaries under consideration of their utilization in finishing. By Hintzmann. 1937. In German. 1.00

L 66995 Frames 356-367 Dressing agents. By H. Gensel. 1937. In German. 1.00

L 66996 Frames 368-398 Development of new dyes, 1933/1936, in the field of dyeing. By Christ. 1937. In German. 3.00

L 66997 Frames 399-417 New dyes for printing. By Bernardy. 1937. In German. 2.00

L 66998 Frames 418-429 Dyes of competitors. By Rabe. 1937. In German. 1.00

L 66999 Frames 430-440 Suggestions in the textile field, (dyes for wool/cellulose wool mixtures). By Fischer. 1937. In German. 1.00

L 67000 Frames 441-467 Suggestions and problems of the Leverkusen branch. By Christ. In German. 2.00

L 67001 Frames 468-486 Suggestions for dyes in wool dyeing. In German. 2.00

L 67002 Frames 487-496 Suggestions of the printing branch, 1936/1937. In German. 1.00

L 67003 Frames 497-505 Contracts with several foreign chemical firms. 1936. In German. 1.00

New processes for dyes and washing dyes preparations.

L 67004 Frames 506-510 "Chromalederechtschwarz V" conc. new. 1936. In German. 1.00

L 67005 Frames 511-512 "Vulcanechtrot 2284 F" powder. 1936. In German. 1.00

L 67006 Frames 513-514 "Vulcanechtorange 1809 F" powder. 1936. In German. 1.00

L 67007 Frames 515-516 "Vulcanechtgelb 593 F" powder. 1936. In German. 1.00

L 67008 Frames 517-518 Phenyl-"neresin" sulfonic acid. 1940. In German. 1.00

L 67009 Frames 519-520 "Chloroneresin" and "Phenylneresin." 1940. In German. 1.00

L 67010 Frames 521-522 "Anthralanrot 56076." In German. 1.00

L 67011 Frame 523 Dye 62403. 1936. In German. 1.00

L 67012 Frame 524 Dyes 62409. 1936. In German. 1.00

L 67013 Frame 525 Dyes 63411. 1936. In German. 1.00

L 67014 Frames 526-528 Leather brown 62548. 1936. In German. 1.00

L 67015 Frames 529-533 Detergents "PA," "CA," "SA," 1940. In German. 1.00

L 67016 Frames 534-536 Detergent admixture "Ho" 188 new powder. 1940. In German. 1.00

L 67017 Frame 537 "Alipon A." 1940. In German. 1.00

L 67018 Frames 538-539 "Alipon CAV" and "CAN." n.d. In German. 1.00

L 67019 Frame 540 "Alipon OTN." 1941. In German. 1.00

L 67020 Frames 541-542 "Alipal C I" 60%. n.d. In German. 1.00

L 67021 Frames 543-544 "Alipon OT" conc. 1942. In German. 1.00

L 67022 Frames 545-549 Diamine aldehyde black 2002. 1937. In German. 1.00

L 67023 Frames 550-551 2-acetoacetamino-5-methoxy-6-ethoxy-benzothiazole. 1937. In German. 1.00

Miscellaneous Chemicals (contd)

L 67024 Frames 552-556 "Siriuslichtgrun 4276." n.d. In German. 1.00

L 67025 Frames 557-562 "Supranolbrillantviolett 8950a." n.d. In German. 1.00

L 67026 Frames 563-564 "Gelbnarhtol 7528." n.d. In German. 1.00

L 67027 Frame 565 "Chromiersrau 4038" Mol. 487.5. 1938. In German. 1.00

L 67028 Frame 566 "Chromiersrau 1816" Mol. 522. 1938. In German. 1.00

L 67029 Frames 567-568 1-Carbethoxyamino-7-naphthol-3-sulfonic acid. 1938. In German. 1.00

L 67030 Frame 569 "Cellitonechtscharlach 5732 A" powder 25%. 1939. In German. 1.00

L 67031 Frames 570-572 "Supranolbrillantrot 4653" (Ma) Mol. 830. n.d. In German. 1.00

L 67032 Frame 573 "Chromieroliv 2834a" (Mol 526). 1939. In German. 1.00

L 67033 Frame 574 "Chromieroliv 2883" Mol 502. n.d. In German. 1.00

L 67034 Frame 575 "Benzechtkupferrsm 3655 A" (Mol 1087). 1941. In German. 1.00

L 67035 Frames 576-590 Report on results in development work in the field of indigo at Höchst. In German. 1.00

L 66969 Reports on meetings of wool technicians, Jan 1936; Reports on meeting of colorists at Leverkusen, 1937; New dyestuff and washing preparations, 1936-1942; Index. 1.00

FB L 17682. I. G. FARBENINDUSTRIE A. G. Papers on theories and processes concerning hydrogenation, catalysts, and motor fuels, Hochdruckversuche Laboratories. (FIAT Microfilm Reel LF 100 (TOM 168), Frames 1-579) Jan 1946. 578 f. Price: Microfilm-$6.00 - Enlargement print-$58.00 Individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give FB and frame numbers when ordering individual items from this microfilm reel. In German.

FB Number Frames	Title	Price
L 78355	Papers on TTH (low-temperature hydrogenation): Files of Dr. Peters. Index.	$1.50
L 78356 Frames 1-2	Processing of brown coal tar, and of fractions therefrom in DHH. plants. In German.	1.50
L 87315 Frames 3-4	Working up of navy fuel oil. In German.	2.00
L 78357 Frames 5-10	Gas phase, and processing of heavy oil over solid-bed catalyst. In German.	1.50
L 78358 Frames 11-12	Stability of catalysts in the TTH process. In German.	1.50
L 87320 Frames 13-15	TTH heavy oil from Puertollano shale oil. In German.	2.00
L 78359 Frames 16-18	Lubricant from vacuum fractions from brown coal extract. In German.	1.50
L 78360 Frames 19-22	Autoclave experiments aiming at the removal of arsenic compounds from Brüx tar products. In German.	1.50
L 78361 Frame 23	Experiments concerning arsenic in Brüx tar. In German.	1.50
L 78362 Frames 24-25	Working up of brown coal tar from Central Germany at 600 atm. In German.	1.50
L 78363 Frames 26-28	Note on the working up of tars from Central Germany and Brüx over solid-bed catalyst 8376. In German.	1.50
L 78364 Frames 29-30	Working of Böhlen tar P 1236 at 250 atm. over catalyst 8376. In German.	1.50
L 87316 Frame 31	Separation of substances during pressure heating of Brüx tar. In German.	2.00
L 78365 Frames 32-36	Cracking of Kulkwitz tar P 1180 at 250 atm. over catalyst 8376. In German.	1.50
L 78366 Frames 37-49	Working of Lurgi low temperature carbonization tar from Puertollano shale oil by the TTH process. In German. Several frames are illegible.	1.50
L 78367 Frames 50-58	Experiments aiming at the cracking hydrogenation of Brüx tar at 250 atm. over solid-bed catalyst 8376. In German.	1.50
L 78368 Frames 59-62	Comparative TTH-experiments. In German.	1.50
L 78369 Frames 63-68	Working of Brüx tar. In German.	1.50
L 78370 Frames 69-75	Working of pressure distillate from Deuben tar over catalyst 6719 by the TTH process. In German.	1.50
L 87317 Frames 76-85	Report on the processing of Matisvaara peat tar. In German.	2.00
L 78371 Frames 86-99	Processing of Böhlen tar plus a middle oil to automobile and aviation gasoline. In German.	1.50
L 78372 Frames 100-115	Experimental report on the working of Matisvaara peat tar. In German.	2.00
L 78373 Frames 116-125	Dehydrogenating refining of Böhlen middle oil with catalyst 7360 at 50 atm. In German.	1.50
L 78374 Frames 126-129	Working of Scotch shale oil (P 475) in the Sump phase over solid-bed catalyst with subsequent high pressure cracking. In German.	1.50
L 78375 Frames 130-135	Working of Rumanian Pacura by cracking over catalyst 8376 at 250 and 600 atm. In German.	1.50

L 78376 Frames 136-148 — Working of crude oil pressure distillate over solid-bed catalyst (7878) and 6434 for motor fuel of O.N. 87. In German. 1.50

L 78377 Frames 149-162 — Working of crude petroleum oils, petroleum heavy oils and petroleum pressure distillates over solid-bed catalysts. In German. 1.50

L 78378 Frames 163-166 — Hydrogenation experiments with Pechelbronn oil. In German. 1.50

L 78379 Frames 167-169 — Low temperature hydrogenation of crude oils. In German. 1.50

L 78380 Frames 170-179 — Processing of Rhenania-Ossag petroleum vacuum distillate to aviation and automobile gasoline. In German. 1.50

L 87318 Frames 180-187 — Processing of sump phase middle oil from the cracking residue of Lagunillas crude oil (P1307) for automobile and aviation gasoline over 6719/6434. In German. 2.00

L 87319 Frames 188-196 — Processing of Wietzer petroleum over 5058/6434 and 7019/6434, respectively. In German. 2.00

Frames 197-207 — These frames are illegible.

L 78381 Frames 208-227 — Abstract from: Octane number relations in aliphatic, alicyclic, mono-nuclear aromatic hydrocarbons, alcohols, ethers and ketones. In German. 1.50

L 78382 Frame 228 — Physical data of some hydrocarbons. In German 1.50

L 78383 Frames 229-237 — The most important data and methods of preparation of some isoparaffins, with particular regard to their use as motor fuels. In German. 1.50

L 78384 Frames 238-244 — Vapor pressures of some hydrocarbons as a function of temperature. In German. 1.50

L 78385 Frame 245 — Overloading tendency of various aromatic fuels. In German. 1.50

L 78386 Frames 246-249 — The dependence of the octane number of the final mixture on the quality of the starting gasoline. In German. 1.50

L 78387 Frame 250 — The dependence of naphthenes on temperatures. In German. 1.50

L 78388 Frame 251 — Knocking properties of mixtures. In German. 1.50

L 78389 Frames 252-261 — Octane numbers of aromatic fuels. In German. 1.50

L 78390 Frames 262-274 — Octane numbers of naphthenes. In German. 1.50

L 78391 Frames 275-285 — Octane numbers of paraffins. In German. 1.50

L 78392 Frames 286-304 — Compounds contained in the light fractions of coal tar. In German. 2.00

L 78393 Frames 305-313 — Compounds contained in the gasoline fractions of petroleum. In German. 1.50

L 78394 Frames 314-321 — Behavior of aromatic fuels in engines. In German. 1.50

L 78395 Frames 322-323 — Influence of the low-boiling fractions (below 100° C.) on the knocking value of the residual gasolines. In German. 1.50

L 78396 Frames 324-326 — 2,2,3-Trimethylbutane and differently branched hydrocarbons, by hydrogenation of trialkyl-acetic acid. In German. 1.50

L 78397 Frames 327-329 — Preparation of isoparaffins, particularly isooctanes. In German. 1.50

L 78399 Frames 330-338 — Experiments aiming at the preparation of "Triptan" and some other isoparaffins. In German. 1.50

L 78398 Frames 339-350 — Compounds rarely occurring in coal tar. In German. 1.50

L 78400 Frames 351-352 — Some condensation reactions taking place in hydrogenation processes both under pressure and at atmospheric pressure. In German. 1.50

L 78401 Frames 353-365 — Some suggestions of the fuel manufacturer as to the design of aviation engines. In German. 1.50

L 78402 Frames 366-373 — Suggestions as to the composition of synthetic motor fuel mixtures used as standard fuel for engine over-loading tests. In German. 1.50

L 78403 Frames 374-390 — Investigations into the composition of gasolines. In German. 2.00

L 78404 Frames 391-395 — Knock limit curves for alcohol-gasoline mixtures. In German. 1.50

L 78405 Frames 396-400 — Evaluation of the CVL method applied in testing overloads by means of variable and constant ignition. In German. 1.50

L 78406 Frames 401-405 — Concerning the question of the evaluation of overload curves: The margin of error in the determination of overload curves. In German. 1.50

L 78407 Frames 406-416 — Calculation of the compression and combustion temperatures of benzene- and isooctane-air mixtures, as dependent on the amount of excess air. In German. 1.50

L 78408 Frames 417-428 — Theoretical evaluation of overload curves. In German. 1.50

L 78409 Frames 429-432 — Gasification during hydrogenation of coal. In German. 1.50

L 78410 Frames 433-435 — Hydrogenation flue gases. In German. 1.50

L 78411 Frames 436-446 — Gas hydrates. In German. 1.50

L 78412 Frames 447-459 — Composition of gases in benzination and aromatization. In German. 1.50

Miscellaneous Chemicals (contd)

L 78413 Frames 460-467 — Total butane and isobutane content of the gaseous products, as dependant on the different conditions under which catalytic pressure hydrogenation is carried out. In German. 1.50

L 78414 Frames 468-470 — Distribution of hydrocarbon gasification in the sump and gas phase. In German. 1.50

L 78415 Frames 471-475 — Conference of the Hydrocarbon Commission at Ludwigshafen, Mar. 16-18, 1942. In German. 1.50

L 78416 Frame 476 — Tungsten sulfide as isomerization catalyst for butane. In German. 1.50

L 78417 Frames 477-480 — Accumulation of "Hy-gas" in the hydrogenation of Ruhr coal to gasoline, or to fuel oil plus gasoline. In German. 1.50

L 78418 Frames 481-489 — Isomerization of n-butane and n-pentane. In German. 1.50

L 78419 Frames 490-495 — Dehydrogenation of n-butane at atmospheric pressure, with gas circulation. In German. 1.50

L 78420 Frames 496-500 — n-Butane hydrogenation at atmospheric pressure, with Oppau catalyst. In German. 1.50

L 78421 Frames 501-522 — Absorption and "desorption." In German. 2.50

L 78422 Frames 523-524 — Molybdenum as accelerator. In German. 1.50

L 78423 Frames 525-530 — Hydrogenation, dehydrogenation, and splitting over Ni, Pt, Pd, Fe, Co, and Cu. In German. 1.50

L 78424 Frames 531-536 — Tungsten oxides. In German. 1.50
Several frames poorly readable.

L 78425 Frames 537-538 — Mechanism of the activation of catalytic surfaces. In German. 1.50

L 78426 Frames 539-547 — Theory of the catalytic surface. In German. 1.50
Legibility poor.

L 78427 Frames 548-551 — "Mehrstoffkatalysatoren." (Catalytic substances, which - apart from the catalyst proper - also contain either activators or stabilizers or both). In German. 1.50

L 78428 Frames 551-552 — Drying of CY_2b with silica gel. In German. 1.50

L 78429 Frames 553-561 — Survey of the literature on oxidation of hydrocarbons in the presence of catalysts. In German. 1.50

L 78430 Frames 562-564 — Study of catalysts suitable for use in the conversion of hydrocarbons. In German. 1.50

L 78431 Frames 565-566 — Observations in catalysts, particularly cracking catalysts. In German. 1.50

L 78432 Frames 567-571 — Atomic structure of tungsten and molybdenum sulfide. In German. 1.50

L 78433 Frames 572-574 — Electron interferometric investigations on alumina-catalysts. In German. 1.50

L 78434 Frames 575-579 — New results concerning space lattice disturbances of active tungsten sulfide. In German. 1.50

PB L 20845. I. G. FARBENINDUSTRIE A. G. Processes for the purification of gases. Biological tests of miscellaneous chemicals. (FIAT Microfilm Reel C 128 (TOM 208), Frames 1-945) 1931-1943. 990 f. Price: Microfilm-$6.00 - Enlargement print-$99.00

Part of this microfilm reel contains a number of patent applications dealing with the purification of gases. The major portion of the reel consists of I. G. files containing correspondence and reports on chemical and pharmacological tests. Several frames are completely or partially illegible. Individual items are listed below and will be available as enlargement prints only. The entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
I. Processes for the purification of gases. Folder No. 814/11-B.G.		
1-52 PB L 20845	The "Sulfammon" process. Jun 1943. In German. Partly illegible.	$5.50
53-56 PB L 20845	Combined "Alkazid" process for the removal of ammoniac and hydrogen sulfide gas from distillation gases, particularly coke gas. Feb 1938. In German. Partly illegible.	1.50
57-64 PB L 20845	Method for the purification of gases. May 1941. In German.	1.50
65-69 PB L 20845	Separation of weak gaseous acids from gases. Oct 1940. In German.	1.50
70-76 PB L 20845	Separation of hydrogen sulfide from gases. Oct 1940. In German.	1.50
77-84 PB L 20845	Method for the purification of gases. Aug 1938. In German.	1.50
85-91 PB L 20845	Method for the purification of gases. Jun 1938. In German.	1.50
92-99 PB L 20845	Method for the purification of gases. Feb 1938. In German.	1.50
II. Biological tests of miscellaneous chemicals.		
100-469 PB L 20845	Folder No. 828/K.D.1. 1941-1944. In German.	38.00
470-507 PB L 20845	Folder No. 828/K.D.4. 1936-1939. In German.	4.00
508-945 and unnumbered frames PB L 20845	Folder No. 820/V-C-11. 1938-1941. In German.	46.00

PB L 17689. I.G. FARBENINDUSTRIE A.G. Reports of meetings of the Naphtol AS Commission (N AS K) 1930-1939; the "Atrament" process for the manufacture of an anti-rust agent; new uses for vibratory machines; reports on nitrogen meetings; miscellaneous articles on textiles. (FIAT Microfilm Reel C 109, Frames 1-680) 1930-1939. 791 f. Price: Microfilm-$6.00 - Enlargement Print-$79.50

This microfilm reel contains parts of discussions of the Naphthol AS Commission, 1930-1939, reports on some other meetings discussing synthetic resins, rayon and related subjects, and a few original contributions and abstracts of lectures in the same field. An effort has been made to separate individual reports, but the nature of some of the discussions did not allow this in every case. In-

dividual items will be available as enlargement prints. Please give both PB and frame numbers when ordering them. All reports are in German.

PB Numbers Frames	Title	Price
L 86933 Frames 1-10	"Naphthol AS-CR." -2-hydroxy-carbazole-3-carboxylic-acid-o-toluidide. Diazo-amino compounds - a new "Naphthol AS" black. n. d. In German.	$2.00
L 66576 Frames 11-22	Various fast dye bases. n.d. In German.	1.00
L 66577 Frames 23-35	Fast dye bases. n.d. In German.	1.00
L 66579 Frames 36-40	News in the field of "Rapidogen" dyes. n.d. In German.	1.00
L 66578 Frames 41-45	Reports concerning the naphthol field. n.d. In German.	1.00
L 66580 Frames 46-47	Experiments on technical manufacture of 1-amino-2-cyano-5-trifluorobenzene. 1936. In German.	1.00
L 66581 Frames 48-56	Hydroxydiphenylene oxide. (Present stage of manufacture.) n.d. In German.	1.00
L 66582 Frames 56-62	Formaldehyde compounds of o-hydroxycar-boxylic-acid-arylides. In German.	1.00
L 66583 Frames 63-67	Are CF_3 groups damaging to fibers? n. d. In German.	1.00
L 66584 Frame 67	Research on water-resistance of terephthaloyl-bis-acetic-arylide products. n. d. In German.	1.00
L 66585 Frames 68-69	Recent textile aids in naphthol AS dyeing. n. d. In German.	1.00
L 66586 Frames 70-73	New practical experiences. n. d. In German.	1.00
L 66587 Frames 74-83	Reports on new chemical research in the field of AS naphthol. In German.	1.00
L 66588 Frames 84 and 84-88	Some interesting innovations in the production of azo salts and Report on the status of the AS naphthol field in Japan. In German.	1.00
L 66589 Frames 88-94	Further research directed toward im-proving the washability of "Variamin" shades of blue. In German.	1.00
L 66590 Frames 95-98	Discussion of new information regarding dyes for printing, and similar problems. In German.	1.00
L 66591 Frames 99-100	Further research on amino-azo-compounds for black. In German.	1.00
L 66592 Frames 101-108A	Discussion of new research and patent applications. In German.	1.00
L 66593 Frames 109-125	A critical consideration of development of "Rapidecht" and "Rapidogen" dyes in the years 1925-1935, inclusive, and related subjects. In German.	2.00
L 66594 Frames 126-129	Various subjects. Mainly: Visit at James Hardcastle Ltd., Bolton, England. In German.	1.00
L 66595 Frames 130-132	Research on peroxide bleaches. In German.	1.00
L 66596 Frames 133-134	Investigation into the possibility of using aryl-sulfamic acids for the production of dyes on the fiber, in comparison with the "Cibe" process. In German.	1.00
L 66597 Frames 134-153	New research in the "Naphthol AS" field. In German.	2.00
L 66598 Frames 154-159	Reports on the uses of AS Naphthol. In German.	1.00
L 66599 Frames 159-168	News from practical experience; new chemical research, particularly on hydroxy benzenecarboxylic acid arylides. In German.	1.00
L 66600 Frames 169-198	A critical survey of the development of fast Rapid and Rapidogen dyes in the years from 1925-1935 inclusive. Also discussion of patents, etc. In German.	2.00
L 66601 Frames 198-208	Testing new products. In German.	1.00
L 66602 Frames 209-219	News from practical experience; Results of new chemical research. In German.	1.00
L 66603 Frames 220-234	Survey of the development of the AS naphthol business during 1937; also chemical results and patents. In German.	1.00
L 66604 Frames 235-253	News from practical experience; Results of new chemical research. In German.	2.00
L 66605 Frames 254-264	Reports on uses of Naphthol AS. In German.	1.00
L 66606 Frames 265-267	Diazoamino compounds from p-nitro-aniline. In German.	1.00
L 66607 Frames 268-271	Concerning "Neocton" and "Neogen" dyes. In German.	1.00
L 66608 Frames 272-274	Report on the second production method of 3-hydroxydiphenylene oxide. In German.	1.00
L 66609 Frames 275-278	"Neocoton" dyes of Ciba - description of process. In German.	1.00
L 66610 Frames 278a-278b	Naphthol brown. In German.	1.00
L 66611 Frames 279-280	Abstract from Russian. The preparation and investigation of naphthols of type "AS" of the fluorene series. In German.	1.00
L 66612 Frame 281	"Neogen" dyes of Sandoz. In German.	1.00
L 66613 Frames 282-299	Discussions of various new results and new patent applications. In German.	2.00
L 66614 Frames 300-301	On new chemical research in the AS naphthol field. In German.	1.00
L 66615 Frames 302-311	On uncolored self-coupling dyes, and other results in dye chemistry. In German.	1.00

Miscellaneous Chemicals (contd)

L 66616 Frames 312-320 — New results in printing practice, and new research in the Naphthol AS field. In German. 1.00

L 66617 Frames 321-324 — Neocoton and Neogen dyes. 1938. In German. 1.00

L 66618 Frames 325-328 — The acylation of aromatic aminosulfonic acids. In German. 1.00

L 66619 Frames 329-336 — Report on a trip to France. 1938. In German. 1.00

L 66620 Frames 337-361 — Practical results, research, and patents, in the Naphthol AS field. In German. 2.00

L 66621 Frames 362-366 — Neocoton and Neogen dyes. 1938. In German. 1.00

L 66622 Frames 367-389 — Abstract of economic report from Soviet Russia, and translations of results of Russian dye research. In German. 2.00

L 66623 Frames 390-419 — A survey of the AS naphthol business in 1938: patents: research results. In German. 3.00

L 66624 Frames 420-423 — "Cibaren" dyes. In German. 1.00

L 66625 Frames 424-426 — Practical results with Rapidogen developer N. In German. 1.00

L 66626 Frames 427-429 — Survey of the amounts and application of AS naphthol products in the printing industry of neutral countries. In German. 1.00

L 66627 Frames 429-459 — Discussions of the entire field, including new research, patent etc. 1939. In German. 3.00

L 66628 Frames 460-475 — Short report on development of AS naphthol field during the first war months, from September 1939, and other business problems. In German. 2.00

L 66629 Frames 476-483 — Ideas for a lecture on: The "Atrapont" process. 1933. In German. 1.00

L 66630 Frames 484-487 — A new field for using gyratory machines. 1934. In German. 1.00

L 66631 Frames 488-489 — Reactions by means of the gyratory mill. In German. 1.00

L 66632 Frames 490-493 — Catalytic method of producing hydrocyanic acid from ammonia, methane, and air. By Andrussow. In German. 1.00

L 66633 Frames 494-500 — Critical review of the report of Dr. Bachmann, October 20, 1934, on: "The value of Kalkstickstoff in agriculture." By Strobele. In German. 1.00

L 66634 Frames 501-503 — Preconcentration of nitric acid. By Petersen. In German. 1.00

L 66635 Frames 504-520 — Development of nitrogen fertilising in Germany, considering particularly the efficiency ratio of the various forms of nitrogen in plant nutrition. By Strobele. In German. 2.00

L 66636 Frames 521-540 — The relations between the chemical constitution and qualities of lubricants. By Zorn. In German. 2.00

L 66637 Frames 541-549 — Cylinder fractures in high-pressure pumps and compressors. By Wyszomirski. In German. 1.00

L 66638 Frames 550-559 — Progress in processing salt coal at Lauma. By Sackmann. In German. 1.00

L 66639 Frames 560-581 — The importance of nitrogen compounds for animal nutrition. By Strobele. In German. 2.00

L 66640 Frames 582-596 — The importance of the more important trace elements in plant nutrition. By Pfotzer. In German. 1.00

L 66641 Frames 597-599 — Oil manufacture at Oppau. By Miller-Cunradi. In German. 1.00

L 66642 Frames 600-604 — Possible fields for the utilisation of new polymers in the production of rayon, silk. 1934. In German. 1.00

L 66643 Frames 604a-608 — The relations between crotonaldehyde and butadien-1-ol. 1935. In German. 1.00

Frames 609-612 — These frames are illegible.

L 66644 Frames 613-617 — Water-soluble cellulose derivatives. 1935. In German. 1.00

L 66645 Frames 618-620 — Hydrophobing cellulose. In German. 1.00

L 66646 Frames 621-625 — Synthetic resins and rayon. Ffm.-Höchst. 1935. In German. 1.00

L 66647 Frames 626-628 — "Siliron" as a textile auxiliary and a substitute for soap. Höchst. 1935. In German. 1.00

L 66648 Frames 629-631 — Hydrophobing cellulose. Höchst. 1935. In German. 1.00

L 66649 Frames 632-633 — A method of removing arsenic compounds from wines. 1935. In German. 1.00

L 66650 Frames 634-638 — "Mowilith HX" for composed glass. 1935. In German. 1.00

L 66651 Frames 639-641 — Plasticisers for "Lanuma." 1935. In German. 1.00

L 66652 Frames 642-648 — New raw materials for floor coverings. 1936. In German. 1.00

L 66653 Frames 649-654 — Plastics for dental uses. 1937. In German. 1.00

L 66654 Frames 655-656 — Inspection of the "MP" plant in Ludwigshafen. 1937. In German. 1.00

L 66655 Frames 657-663 — Abstracts of lectures on cellulose style. 1937. In German. 1.00

L 66656 Frames 664-665 — Difficulties encountered in the manufacturing of tires from Buna. 1937. In German. 1.00

L 66657 Frames 666-668 — De-emulsification. 1938. In German. 1.00

Miscellaneous Chemicals (contd)

Frames 669-672	These frames are illegible.	
L 66658 Frames 673-677	Polyurethane and polyacetal. 1942. In German.	1.00
L 66659 Frame 678	Cation-active emulsifiers for Buna polymerization. 1942. In German.	1.00
L 66660 Frames 679-680	Discussion on lubricants. 1943. In German.	1.00
L 66575	Reports of the meetings of the Naphthol AS Commission (N AS K) 1930-1939.	1.00

PB L 20842. I.G. FARBENINDUSTRIE A.G. Reports of the Solvents Commission (Löko), 1936-1943; Selected reports of the Technical Commission (Teko), 1933-1934, 1940, 1942, 1943; Additional reports of the Solvents Commission (Löko), Jan 1936. (FIAT Microfilm Reel C 121) Feb 1946. 532 f. Price: Microfilm-$6.00 - Enlargement print-$53.50
The individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give PB and frame numbers when ordering individual items from this microfilm reel. In German.

PB Numbers Frames	Title	Price
L 78293	Index. In German.	$1.50
L 87402 1	Glycerol. In German.	2.00
L 78294 2	"Cohesan." In German.	1.50
L 78295 3	Present stage of the electric-arc-acetylene process. In German.	1.50
L 78296 4-6	Lecture by Klein - "Process for the production of acetylene by partial oxidation of methane in vacuo." In German.	1.50
L 87403 7	"Buna"; synthetic rubber. In German.	2.00
L 78297 8-14	New products in the field of Löko. In German.	1.50
L 78298 15-18	Electric-arc acetylene-acetaldehyde. In German.	1.50
L 78299 19-25	New products in the field of Löko. In German.	1.50
L 78300 26-30	Fermentation of beechwood-sulfite waste liquor. In German.	1.50
L 78301 31-39	Development of manufacture of alkydal. In German.	1.50
L 78302 40-44	New products in the field of Löko. In German.	1.50
L 78303 45	Acetaldehyde by the "Ansolvo-acid" process. In German.	1.50
L 78304 46-66	Acetaldehyde from acetylene via vinyl methyl ether. In German.	2.50
L 78305 67-74	New products in the field of Löko. In German.	1.50
L 78306 75-77	35th session of the Solvents Commission. Program for 1938, for acetaldehyde and its further treatment. In German.	1.50
L 78307 78-89	36th session of the Solvents Commission. In German.	1.50
L 78308 90-96	Report on the present stage of the various aldehyde processes. In German.	1.50
L 78309 97-98	Miscellaneous. In German.	1.50
L 78310 99-100	Abstract from report of Dr. Wulff on byproducts of the production of butylene glycol at the Buna plant, Schkopau. In German.	1.50
L 78311 101-102	Continuous high-pressure process with the use of nickel catalyst. In German.	1.50
L 78312 103-104	Aldol hydrogenation - report by Dr. Nicodemus. In German.	1.50
L 78313 105-109	The reaction of acetylene with organic compounds. In German.	1.50
L 78314 110-114	Research on several new subjects. In German.	1.50
L 78315 115-116	Products of methane chlorination. In German.	1.50
L 78316 117-120	Report on the production of ethylene in Leuna. In German.	1.50
L 78317 121	Manufacture of carbonyldiurea. In German.	1.50
L 78318 122	Ethylene from acetylene. In German.	1.50
L 78319 123-124	Alcohols from olefins and steam. In German.	1.50
L 78320 125-134	New products in the field of Löko. In German.	1.50
L 78321 135-151	Experiments with ethyl and isopropyl-sulfuric acid by Zweckel. In German.	2.00
L 78322 152-169	On ketene and diketene. In German.	2.00
L 78323 170	Acetic anhydride. In German.	1.50
L 78324 171-172	Short report on the meeting of the Trades Committee at the "Reichs Monopol Administration" on October 16, 1942. In German.	1.50
L 78325 173-174	Reports from various plants. In German.	1.50
L 78326 175-176	Research work leading up to the production of high quality plasticizers for which raw materials are available. In German.	1.50
L 78327 177-189	Characterization of plasticizers and plasticized synthetic masses by new physical, especially electrical, measuring methods. Theory of Makromolecular plasticizers. In German.	1.50
L 78328 190-212	Relations between chemical constitution and plasticizing effects. In German.	2.50
L 78329 213-215	Requirements by industrial production in the field of plasticizers. In German.	1.50

L 78330 216-219	New viewpoints for testing plasticizers used in lacquer industry. In German.	1.50
L 78331 220-222	Experiences with the most important plasticizers. In German.	1.50
L 78332 223-227	Plasticizers for artificial leather of nitrocellulose. In German.	1.50
L 78333 228-246	Esters as lubricating oils. In German.	2.00
L 78334 247-260	Igelit plasticizers on the basis of ether and thioethercarboxylic acids and thioether alcohols. In German.	1.50
L 78335 261-265	Research on new plasticizers. In German.	1.50
L 78336 266-275	Studies at Leverkusen in the field of plasticizers. In German.	1.50
L 78337 276-280	New studies in the field of plasticizers. In German.	1.50
L 78338 281-283	Preparation of α,β-thiobutyric acid esters. In German.	1.50
284-292	(These frames are illegible.)	
L 78339 293-296	"Alumitizing" "alitizing" and galvanizing. In German.	1.50
L 78340 297-300	Corrosion problems in the camera plant. In German.	1.50
L 78341 301-303	Ultra fine grinding and ultra fine sifting. In German.	1.50
L 78342 304-305	Problems in the field of absorption. In German.	1.50
L 78343 306-307	Problems of regulators in chemotechnical plants. In German.	1.50
L 78344 308-309	Similarity of models in construction of chemical apparatus. In German.	1.50
L 78345 310-311	Experiments on dust removal from the air. In German.	1.50
L 78346 312-313	Experiments on the mixing process in cylindrical drums. In German.	1.50
L 78347 314-315	New methods in the science of designing. In German.	1.50
L 78348 316	Myco Process (talk by Dammer). In German.	1.50
L 78349 317-318	The development of the kneading pump. (Report by Dr. Giesskalt). In German.	1.50
L 78350 319-323	Technique of chemical processes. (Dr. Patat). In German. One page illegible.	1.50
L 78351 324-326	Technique of chemical processes as modern engineering problem. In German.	1.50
L 78352 327-352	28th Meeting of the Solvent Commission on January 31, 1936. Item 9 on the agenda: "The condensation of acetylene with copper salts according to Nieuwland on a technical scale." Lecturer: Dr. Van Zaphen, Höchst. In German.	3.00
L 78353 353-381	Substituted acetylenes. Their preparation, production, properties and possible uses. In German. Legibility poor.	3.00
382-532	(These frames are illegible.)	

PB L 20864. I.G. FARBENINDUSTRIE A.G. Reports presented at the Tanning Agents Conferences, 1935, 1936-1939; Reports of the Chromium Sub-Committee (Chrom-Uko), 1938-1939. (FIAT Reel C 107, Frames 1-288, 16mm microfilm). Feb 1946. 288 f. Price: Microfilm-$3.75 - Enlargement Print-$29.00.
There are 40 individual items listed below which will be available as enlargement prints only. Please include PB and frame numbers when ordering individual items from this microfila reel. In German.

Frames	Title	Price
	Reports of tanning agent meeting, Ludwigshafen 1939.	
1 - 9 PB L 20864	Development of supra tanning agents at Ludwigshafen. In German.	1.50
10 - 18 PB L 20864	Tanigan extra D and Tanigan extra D 2. In German.	1.50
19 - 31 PB L 20864	Preparation of tanning agents by use of waste sulphite liquor and Tanigan V. In German.	1.50
32 - 42 PB L 20864	Tanning-fixing agents. In German.	1.50
43 - 64 PB L 20864	Present stage of experiments in mineral tanning. In German.	2.50
65 - 70 PB L 20864	Recent experiences in Blancorol-A-tanning. In German.	1.50
71 - 78 PB L 20864	Application of salts of complex forming acids in chrome tanning: Ingelenal and Neutrigan. In German.	1.50
	Reports from Hoechst of tanning agent meeting. Exchange of reports 1939.	
79 - 82 PB L 20864	Tanigan SK, an improved and cheaper Tanigan S. In German.	1.50
83 - 88 PB L 20864	Research on formation of flaws in Kirchhainer red leather. Some agents for preventing or reducing their growth. In German.	1.50
89 - 93 PB L 20864	Experience with application of phenol oils and crude phenol instead of Cresol DAB IV and pure phenol in preparation of tanning agents. In German.	1.50
94 - 97 PB L 20864	Experiments for preparation of cheaper tanning agents from waste liquors of beta-naphthol production. In German.	1.50
	Reports from Leverkusen on tanning agent meeting 1939.	
98 - 100 PB L 20864	Tanning agents from beech waste sulphite liquor. In German.	1.50
101 - 102 PB L 20864	Tanning agents from existing waste sulphite liquor by using small portions of resin. In German.	1.50
103 - 106 PB L 20864	Preparation of ash-free tanning agents. In German.	1.50
107 - 109 PB L 20864	Tanning agents by using resins from carbohydrate-containing substances and phenol. In German.	1.50
110 PB L 20864	Connection between ease of analysis and preparation of waste sulphite liquor tanning agents. In German.	1.50
111 - 114 PB L 20864	Tawing agents based on sulfo groups. In German.	1.50
115 - 118 PB L 20864	Tanigan extra types in continuous application. In German.	1.50

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Miscellaneous Chemicals (contd)

119 PB L 20864 — Reports from Wolfen on tanning agent meeting. Exchange of reports 1939. In German. 1.50

120 - 124 PB L 20864 — Substitute tanning agents from beech waste sulphite liquor. In German. 1.50

125 - 127 PB L 20864 — Separation of iron from lignin-sulfonic acid preparations or from solution of tanning agents from ligninosulfonic acids. In German. 1.50

128 - 136 PB L 20864 — Tanning salts from ligninsulfonic acids of beech wood. In German. 1.50

Reports from Ludwigshafen of tanning agent meeting 1935.

137 - 148 PB L 20864 — Importance of Tanigans in leather production, their effect and range of application. In German. 1.50

149 - 169 PB L 20864 — Synthesis and development of Tanigans, progressive improvement and objectives in further development. In German. 2.50

170 - 176 PB L 20864 — Information regarding Tanigan production at Ludwigshafen. In German. 1.50

177 - 182 PB L 20864 — Iron tanning. In German. 1.50

Reports from Hoechst of tanning agent meeting 1935.

183 - 192 PB L 20864 — Development and improvement of Tanigans H and S at Hoechst. In German. 1.50

193 - 201 PB L 20864 — Experience in production of Tanigan H and Tanigan HN in powdered form. In German. 1.50

202 - 209 PB L 20864 — Effect of acidity and pH value on synthetic tanning agents. In German. 1.50

210 - 215 PB L 20864 — Preparation of synthetic tanning agents from lignin, peat and similar substances. In German. 1.50

216 - 219 PB L 20864 — Preparation of tanning agents based on rosin. In German. 1.50

220 - 223 PB L 20864 — Experiments for using nitrogen-containing fats in tanning. In German. 1.50

224 - 227 PB L 20864 — Preparation of tanning agents from phenols and chlorinated aldehydes, ketones or ethers. In German. 1.50

228 - 231 PB L 20864 — Experiments for preparation of tanning agents from hydrocarbons of high-molecular weight. In German. 1.50

232 - 236 PB L 20864 — Experiments for preparation of tanning agents from salicylic acid. In German. 1.50

237 - 241 PB L 20864 — Tanning effects polymers of high-molecular weight. In German. 1.50

Miscellaneous matters discussed at various meetings of the Chromium Sub-Committee.

242 - 243 PB L 20864 — Regeneration in the existing chromate furnaces. Gersthofen process. Oppau process. Leverkusen process. Bosel-Valetra-process. In German. 1.50

244 - 245 PB L 20864 — Extracts from recent patents 1938/39. In German. 1.50

246 - 272 PB L 20864 — Survey of patents and papers. In German. 3.00

273 - 284 PB L 20864 — Recent patents in the chromium field. Dr. Jahrstorfer's process. Dichromate-containing combustion promoters of American origin. In German. 1.50
Frame partly illegible.

284 - 288 PB L 20864 — Possible uses for the green chromium liquor resulting from the wax oxidation. In German. 1.50

PB L 17659. I.G. FARBENINDUSTRIE A.G. Reports on the Intermediate Products Commission (Zetko), 1930, 1940. (FIAT Microfilm Reel C 62) Jan 1946. 926 f.
Price: Microfilm-$6.00 - Enlargement Print-$93.00
This microfilm reel consists of 173 reports from the individual I.G. plants, describing the preparation and reactions of a wide assortment of intermediates. The earlier reports are dated February and March 1930. The later reports are dated April and May 1940, with a few reports dated January-March. The individual reports are listed below and will be available as enlargement prints only. An index to the reports is given. The entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

PB Numbers Frames	Title	Price
L 63070 Frames 3094-3097	Reports from individual I.G. Plants to the Scientific Intermediates Commission 1930. In German.	$1.00
L 63071 Frames 3098-3100	Acetyl chloride from methyl chloride and carbon monoxide. (Höchst) In German.	1.00
L 63072 Frames 3101-3105	Reactions of ethylene oxide and its derivatives. (Höchst) In German.	1.00
L 63073 Frames 3106-3109	Chloroacetic anhydride. (Höchst) (Preparation) In German.	1.00
L 63074 Frames 3110-3111	Vinyl chloride from ethylene chloride. (Höchst) In German.	1.00
L 63075 Frames 3112-3113	New aliphatic sulfonic and hydroxy-sulfonic acids. (Höchst) In German.	1.00
L 63076 Frames 3114-3117	Hydroxy- and halogalkysulfonic acids and their conversion products. (Höchst) In German.	1.00
L 63077 Frames 3118-3120	Preparation of cyclotetramethylensulfone and homologues. (Leverkusen) In German.	1.00
L 63078 Frames 3121-3123	A highly active nickel catalyst. (Wolfen) In German.	1.00
L 63079 Frames 3124-3137	Aldehyde syntheses by means of chloroacetic acid ester or acetylene addition to ketones. In German.	1.00
L 63080 Frame 3138	Reaction of alkyl halides with ammonia. (Höchst) In German.	1.00
L 63081 Frame 3139	New synthesis of trimethylamine and other tertiary methylated amines. In German. Legibility poor.	1.00
L 63082 Frames 3140-3142	Preparation of urethanes and their methylol derivatives. (Ordingen) In German.	1.00
L 63083 Frames 3143-3144	New pyridine derivatives. (Höchst) In German.	1.00

Miscellaneous Chemicals (contd)

L 63084 Frames 3145-3149 — 2-phenyl-4, 6-dihydroxy- 1,3,5-triazine and derivatives and 2,4-dinitrophenyl-6-hydroxy-1,3,5-triazine. In German. 1.00

L 63085 Frames 3150-3156 — Preparation of 1,3,6-dibenzophenazine and derivatives. In German. 1.00

L 63086 Frames 3157-3165 — Aminobenzothiazoles from arylthiourea compounds. (Mainkur) In German. 1.00

L 63087 Frames 3166-3168 — New Carbazole derivatives and similar ring systems. In German. 1.00

L 63088 Frames 3169-3171 — 2-Hydroxycarbazole from 2-aminocarbazole. (Leverkusen) In German. 1.00

L 63089 Frames 3172-3176 — 2-Hydroxycarbazole prepared synthetically from 2,2'-dinitrodiphenyl-4-sulfonic acid. (Leverkusen) In German. 1.00

L 63090 Frames 3177-3184 — o-Hydroxycarboxylic acids of various ring-systems and their usefulness for the production of Naphthol-AS-dyes. (Elberfeld) In German. 1.00

L 63091 Frames 3185-3190 — Experiments aiming at the preparation of substantive hydroxycarboxylic acid arylides of the benzene series. (Offenbach) In German. 1.00

L 63092 Frames 3191-3193 — New method of preparation for 1,7-dihydroxy-naphthalene. (Leverkusen) In German. 1.00

L 63093 Frames 3194-3197 — 1-Hydroxynaphthalene-3-carboxylic acid. (Höchst) In German. 1.00

L 63094 Frames 3198-3200 — 5-Hydroxyacenaphthene. (Höchst) In German. 1.00

L 63095 Frames 3201-3205 — Development of the acenaphthenone synthesis from naphthalene into a technically useful process. In German. 1.00

L 63096 Frames 3206-3209 — Amination of naphthols sulfonated in the meta-position. In German. 1.00

L 63097 Frames 3210-3215 — Preparation of quinone from benzene. (Wolfen) In German. 1.00

L 63098 Frames 3216-3219 — Separation of 2,3,4- and 2,3,5-trichlorotoluenes. (Griesheim) In German. 1.00

L 63099 Frames 3220-3221 — Derivatives of the vic. - trichlorobenzenes. (Griesheim) In German. 1.00

L 63100 Frames 3222-3230 — Technical method for the separation of the three isomeric dinitrobenzenes. Possible future uses of this method. (Griesheim) In German. 1.00

L 63101 Frames 3231-3235 — Experiments aiming at the separation of xylenes and nitroxylenes. (Griesheim) In German. 1.00

L 63102 Frames 3236-3239 — A new reduction method. (Leverkusen) In German. 1.00

L 63103 Frames 3240-3245 — Preliminary report on the separation of o-and p-cresols. (Griesheim) In German. 1.00

L 63104 Frames 3246-3259 — Experiments aiming at the separation of the technical cresol mixture. (Griesheim) In German. 1.00

L 63105 Frames 3260-3266 — Experiments aiming at the separation of crude cresol. (Griesheim) In German. 1.00

L 63106 Frames 3267-3271 — Tri- and tetrachlorocresol. (Griesheim) In German. 1.00

L 63107 Frames 3272-3290 — The use of substituted phenols as preservatives. (Ürdingen) In German. 2.00

L 63108 Frames 3291-3292 — Decomposition of the alkali salts of the hydroxybenzene-sulfonic acids on heating. (Höchst) In German. 1.00

L 63109 Frames 3293-3294 — Observations concerning the catalytic N-methylation of aniline. (Ürdingen) In German. 1.00

L 63110 Frames 3295-3298 — Method for the separation of primary and secondary amines from tertiary amines by means of chlorosulfonic acids or fuming sulfuric acid. (Höchst) In German. 1.00

L 63111 Frames 3299-3303 — Aminosulfo chlorides and N-substituted aminosulfo chlorides of the aromatic series. In German. 1.00

L 63112 Frames 3304-3309 — Arylsulfo chlorides containing basic groups. In German. 1.00

L 63113 Frames 3310-3312 — Introduction of the aminomethyl group and the chloromethyl group into aromatic nuclei. (Wolfen) In German. 1.00

L 63114 Frames 3313-3319 — Introduction of the chloromethyl group into hydrocarbons containing two or more benzene rings, into phenol ethers, thionphenol ethers, phenols, aromatic amines. (Wolfen) In German. 1.00

L 63115 Frames 3320-3323 — New aldehydesulfonic acids by oxidation of the CH_3 group according to the permanganate method. (Höchst) In German. 1.00

L 63116 Frames 3324-3326 — Catalytic influence on manganese dioxide oxidations. In German. 1.00

L 63117 Frames 3327-3331 — p-Nitrosoamines. (Höchst) In German. 1.00

L 63118 Frames 3332-3334 — Experiments aiming at the preparation of diphenylamine derivatives. (Offenbach) In German. 1.00

L 63119 Frames 3335-3340 — N-cyclohexylaryl amines. (Mainkur) In German. 1.00

L 63120 Frames 3341-3342 — A uniform 2-aminotetralin-4-sulfonic acid. (Höchst) In German. 1.00

L 62524 Frames 3343-3347 — Rearrangement products from chloroacetyl-1,8-aminonaphthols. (Leverkusen) In German. 1.00

L 63121 Frames 3348-3349 — Experiments aiming at the utilisation of wool fat. (Höchst) In German. 1.00

Additional reports (e.g. reports that were not discussed during the meeting)

L 63122 Frame 3350 — Proof for the meta-position of the SO_3H-group in the ethylbenzylaniline-sulfonic acid. (Höchst) In German. 1.00

Miscellaneous Chemicals (contd)

L 62783 Frames 3351-3353 — Preparation of a new group of o-anilinesulfonic acids. (Höchst) In German. 1.00

L 63123 Frames 3354-3358 — Preparation of 3-nitro-4-alkoxynaphthoic acids and the introduction of unsaturated groups into 3-nitro-4-alkoxybenzoic acid. In German. 1.00

L 63124 Frames 3359-3360 — Derivatives of 2,2'-Dinaphthyl-1,1'-disulfonic acid. In German. 1.00

L 63125 Frames 3361-3362 — Preparation of homologues of hexahydrobenzyl alcohol. (Leverkusen) In German. 1.00

L 63126 Frames 3363-3366 — Indolesulfonic acids. (Leverkusen) In German. 1.00

L 63127 Frames 3367-3371 — Isomeric conditions in the chlorination of nitronaphthalene. (Leverkusen) In German. 1.00

L 63128 Frames 3372-3375 — Reactions with resin-like substances. (Leverkusen) In German. 1.00

L 63129 Frames 3376-3379 — Chlorination of p-nitroanisole and action of methylalcoholic alkali on mono-and dinitrotrichloroanisole. (Griesheim) In German. 1.00

L 63130 Frames 3380-3381 — 1-Chloro-2-methoxy-3-nitrobenzene. (Griesheim) In German. 1.00

L 63131 Frames 3382-3384 — 4-Nitro-6-aminoresorcinol dimethyl ether. (Griesheim) In German. 1.00

I 63132 Frames 3385-3393 — Research on guaiacols, veratroles, hydroquinone - dimethyl ethers and safroles. (Griesheim) In German. 1.00

L 63133 Frames 3394-3397 — Polyvarylethers. (Wolfen) In German. 1.00

L 63136 Frames 3398-3399 — 8-Chloro-1-naphthol-2-sulfonic acid. (Wolfen) In German. 1.00

L 63134 Frames 3400-3403 — Substituted o-aminobenzaldehydes. (Mainkur) In German. 1.00

L 63135 Frames 3404-3411 — 2-Arylamino-6-hydroxynaphthalenes. (Mainkur) In German. 1.00

L 63137 Frame 3412 — Dehydrogenation of aliphatic hydrocarbons. (Ludwigshafen) In German. 1.00

L 63138 Frames 3413-3416 — Reports from Ludwigshafen. In German. 1.00

L 63139 Frames 3417-3421 — Chlorination of phthalic acid in aqueous solution. In German. 1.00

L 63140 Frames 3422-3428 — Preparation of carboxylic acids in alkali-aluminium chloride-melt. In German. 1.00

L 63141 Frames 3429-3437 — Preparation of sulfonated 2-amino-3-naphthoic acids and 2-amino-3-naphthoic acids. In German. 1.00

L 63142 Frames 3438-3441 — Preparation of isoamylaniline and isoamyl-meta-toluidine. In German. 1.00

L 63143 Frames 3442-3447 — Preparation of N-alkyl-N-aryl-beta-aminopropionic acids or their esters. In German. 1.00

L 63144 Frames 3448-3449 — Maleic acid from succinic acid. In German. 1.00

L 62586 Frames 3450-3451 — Epsilon-caprolactam from adipic acid. In German. 1.00

L 63145 Frames 3452-3455 — Oxidations at high pressure in liquid phase. In German. 1.00

L 63146 Frames 3456-3459 — Transformation of diene addition products. In German. 1.00

L 63147 Frames 3460-3465 — Addition of acrylic acid esters and acrylonitrile to reactive $-CH_2-$ groups. In German. 1.00

L 63148 Frames 3466-3470 — Action of butadiene-dioxide on primary amines. In German. 1.00

L 63149 Frames 3471-3473 — Present status of preparation of tetrahydrofuran. In German. 1.00

L 63150 Frames 3474-3480 — Introduction of the properxyl group into organic compounds. In German. 1.00

L 63151 Frames 3481-3484 — Determination of properxyl alcohols. In German. 1.00

L 63152 Frames 3485-3487 — Preparation of propionic aldehyde from properxyl alcohol. In German. 1.00

L 63153 Frames 3488-3493 — Hydrogenation of adipic acid dinitrile into hexamethylene-diamine. (Report is complete - there is no p. 3490) In German. 1.00

L 63154 Frames 3494-3501 — Substitute for colophony (rosin) for sizing of paper. In Germany. 1.00

L 63155 Frames 3502-3508 — New vinyl ethers. In German. 1.00

L 63156 Frames 3509-3513 — Preparation of thioacrylic acids and their esters from mercaptans, acetylene and nickel carbonyl. In German. 1.00

L 63157 Frames 3514-3521 — Catalytic hydrogenation of 3-hexyne-2, 5-diol and preparation of 1,4-dimethyl-butadiene. In German. 1.00

L 63158 Frames 3522-3525 — Condensation of acetaldehyde with acetylene. In German. 1.00

L 63159 Frames 3526-3534 — Preparation of pyrrolidine, piperidine and their derivatives. In German. 1.00

L 63160 Frames 3535-3537 — Preparation of aminocarboxylic acids from gamma-butyrolactone. In German. 1.00

L 63161 Frames 3538-3541B — Preparation of ethers and thioethers from lactones. In German. 1.00

L 63162 Frames 3542-3546 — Reaction of nickel carbonyl with substituted acetylenes. (Poor legibility) In German. 1.00

L 63163 Frames 3547-3549 — Chlorination of 2-butene-1,4-diol. In German. 1.00

L 63164 Frames 3550-3556 — Reactions of tetrahydrofurans and dihydrofurans. In German. 1.00

Miscellaneous Chemicals (contd)

L 63165 Frames 3557-3559 — Synthesis of piperidones. In German. 1.00

L 63166 Frames 3560-3562 — Thermal cleavage of 2,5-hexanediol diacetate. In German. 1.00

L 63167 Frames 3563-3570 — Some derivatives of pyrrolidones. In German. 1.00

L 63168 Frames 3571-3574 — Some hydroaromatic substituted aliphatic carboxylic acids. In German. 1.00

L 63169 Frames 3575-3579 — Aminated ring opening. In German. 1.00

L 63170 Frames 3580-3582 — Process for preparation of alcohols. In German. 1.00

L 63171 Frames 3583-3588 — Vinylation of imidazoles. In German. 1.00

L 63172 Frames 3589-3592 — Succinic acid. In German. 1.00

L 63173 Frame 3593 — Reports from Marsburg. In German. 1.00

L 63174 Frames 3594-3598 — Dimerization of isobutenyl chloride. In German. 1.00

L 63175 Frames 3599-3602A — Constitution of sulfochlorides resulting from sulfochlorination of propane. In German. 1.00

L 63176 Frames 3603-3605 — Utilization of diisobutyldiphenol sulfide as lubricating oil-inhibitor. In German. 1.00

L 63177 Frames 3606-3609 — Preparation of dimethylamine from monomethylamine. In German. 1.00

L 63178 Frames 3610-3615 — Leuna-carboxylic acids. In German. 1.00

L 63179 Frames 3616-3621 — Separation of cyclohexanones and cyclohexanols. In German. 1.00

L 63180 Frames 3622-3624 — Dehydrogenation of cyclohexanol. In German. 1.00

L 63181 Frames 3625-3627 — Reports from Hoechst. In German. 1.00

L 63182 Frames 3628-3631 — Preparation of chlorobromomethane from methylene chloride, aluminium and bromine. In German. 1.00

L 63183 Frames 3632-3645 — Experiments on fire extinguishers with bromochloromethanes and hydrocarbon halides. In German. 1.00

L 63184 Frames 3646-3648 — Chlorination of dimethyl sulfate. In German. 1.00

L 63185 Frames 3649-3650 — Starch hydrolysis with aid of carbon dioxide. In German. 1.00

L 63186 Frames 3651-3663 — Diketene and its use. In German. 1.00

L 63187 Frames 3664-3666 — Preparation of 4,5-diaminosalicylic acid. In German. 1.00

L 63188 Frames 3667-3669 — Separation of Blue base V as hydrochloride (4'-methoxy-4-aminodiphenylamine hydrochloride). In German. 1.00

L 63189 Frames 3670-3678 — Anthraquinones containing trifluoromethyl groups. In German. 1.00

L 63190 Frames 3679-3687 — New investigations in the terpene field. In German. 1.00

L 63191 Frame 3688 — Reports from Griesheim. In German. 1.00

L 63192 Frames 3689-3690 — Nitro substituted o-aminophenols. In German. 1.00

L 63193 Frames 3691-3694 — Concentration and yield of coumarone from heavy benzene. In German. 1.00

L 63194 Frames 3695-3698 — Preparation of ether acids from Leuna alcohol. In German. 1.00

L 63196 Frames 3699-3700 — Preparation of p-cymarylsulfones. In German. 1.00

L 63195 Frame 3701 — Reports from Mainkur. In German. 1.00

L 63197 Frames 3702-3709 — Di- and tetrahydropyran. In German. 1.00

L 63198 Frames 3710-3715 — Substituted aminodiphenyl ethers. In German. 1.00

L 63199 Frames 3716-3721 — High molecular weight primary aromatic amines. In German. 1.00

L 63200 Frames 3722-3724 — Preparation of thiourea. In German. 1.00

L 63201 Frames 3725-3726 — 1-Arylamino-5-naphthol-7-sulfonic acids. In German. 1.00

L 63202 Frame 3727 — Reports from Offenbach. In German. 1.00

L 63203 Frames 3728-3720 — Research for preparation of naphthol-AS with saving of toluene and phosphorus trichloride. In German. 1.00

L 63204 Frames 3731-3736 — Preparation of aromatic nitrile compounds. In German. 1.00

L 63205 Frames 3737-3739 — Reports from Leverkusen. In German. 1.00

L 63206 Frames 3740-3742 — Preparation of alkylenes from aliphatic sulfonic acids. In German. 1.00

L 63207 Frames 3743-3745 — Preparation of 1,4-diaminobutane. In German. 1.00

L 63208 Frames 3746-3749 — Preparation of alkylolamines. In German. 1.00

L 63209 Frames 3750-3752 — Preparation of succinic acid from beta, beta-dichlorodiethyl ether. In German. 1.00

Miscellaneous Chemicals (contd)

L 63210 Frames 3753-3755 — Preparation of succinimide. In German. 1.00

L 63211 Frame 3756 — Preparation of alpha-pyrrolidone. In German. 1.00

L 63212 Frames 3757-3761 — Preparation of nonamethylene- and decamethylene dicarboxylic acids. In German. 1.00

L 63213 Frames 3762-3764 — Condensation of paraffins with maleic anhydride by simultaneous action of chlorine. In German. 1.00

L 63214 Frames 3765-3768 — Preparation of 1.3- and 1.4-diaminocyclohexane. In German. 1.00

L 63215 Frames 3769-3771 — Preparation of dinitrodiphenyl ether. In German. 1.00

L 63216 Frames 3772-3775 — Preparation of di- and polyhydroxyaryl sulfones. In German. 1.00

L 63217 Frames 3775A-3778 — Nitrodiphenylamine. In German. 1.00

L 63218 Frames 3779-3783 — Preparation of diphenylamine derivatives by means of metallocanilides and aromatic chlorine compounds. In German. 1.00

L 63219 Frames 3784-3787 — New nitro naphthylaminesulfonic acids. In German. 1.00

L 63220 Frames 3788-3789 — Preparation of chloro-I-acid. In German. 1.00

L 63221 Frames 3790-3794 — Methylation of aminonaphtholsulfonic acids. In German. 1.00

L 63222 Frames 3795-3797 — New method for preparing arylmyricines. In German. 1.00

L 63223 Frames 3798-3801 — 1-Aryl-5-pyrazolone-4-sulfonic acids and derivatives. In German. 1.00

L 63224 Frames 3802-3808 — Various intermediate products: (a) Protocatechuic acid (3,4-dihydroxybenzoic acid). (b) Preparation of 4,4-diaminodibenzyl 2,2'-disulfonic acid. (c) 1-Amino-8-naphthol-6-sulfonic acid. (d) Disulfonic acids from 1,5-aminonaphthol. In German. 1.00

L 63225 Frame 3809 — Corrections for a Zetko exchange report of 1939. In German. 1.00

L 63226 Frame 3810 — Reports from Werdingen. In German. 1.00

L 63227 Frames 3811-3813 — Preparation of triphenylamine. In German. 1.00

L 63229 Frames 3814-3820 — New antioxidants for preservation of fats and oils. In German. 1.00

L 63228 Frames 3821-3822 — Reports from Wolfen. In German. 1.00

L 63230 Frames 3823-3826 — Acetaldehyde disulfonic acid. In German. 1.00

L 63231 Frames 3827-3829 — Substituted aminosulfonic acids and aminosulfinic acids. In German. 1.00

L 63232 Frames 3830-3834 — Preparation of a substitute tanning agent from the calcium salt of lignisulfonic acid. In German. (Frame 3833 is missing) 1.00

L 63233 Frames 3835-3838 — Preparation of tanning materials low in ash as well as free of ash, iron, and mineral acids by application of the Wofatit-desalting process. In German. 1.00

L 63234 Frames 3839-3845 — Technical extraction of vanillin from sulfite waste liquors. In German. 1.00

L 63235 Frames 3846-3853 — Production of yeast culture medium from beech sulfite waste liquor. In German. 1.00

L 63236 Frames 3854-3861 — Ring splitting reactions of furan derivatives. In German. 1.00

L 63237 Frames 3862-3866A — Solvents, softeners and aromatic substances obtained from furfural. In German. 1.00

L 63238 Frames 3867-3869 — Preparation of mono-oxalkylated aminophenols. In German. 1.00

L 63069 — Reports of the Intermediate Products Commission. Index. 2.00

PB L 17651. I. G. FARBENINDUSTRIE A. G. I. G. Farben reports relating to hydrogenation. (FIAT Microfilm Reel LF 47 (TOM 163), Frames 1-401) Dec 1945. 401 f. Price: Microfilm $7.00 - Enlargement print $40.50

The 129 individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $7.00. Please give the PB number and the frame numbers when ordering individual items from this microfilm reel. In German. The legibility of this reel is very poor, many frames being illegible.

Frames	Title	Price
1-2 PB L 17651	German solid starting materials. In German.	$1.50
3-4 PB L 17651	Properties of German crude oils. In German.	1.50
5-17 PB L 17651	These frames are illegible.	
18-22 PB L 17651	The possibility of hydrogenation of coal. In German.	1.50
23 PB L 17651	Hydrogen. In German.	1.50
24 PB L 17651	Consumption of hydrogen. In German.	1.50
25-26 PB L 17651	Production of hydrogen. In German.	1.50
27-29 PB L 17651	Various methods of producing water-gas. In German.	1.50
30 PB L 17651	Development of catalysts for use in the gas phase. In German.	1.50
31-37 PB L 17651	The development of the poison-resistant catalysts and of the gas-phase hydrogenation. In German.	1.50

Miscellaneous Chemicals (contd)

38-40 PB L 17651	Trend of prices for tungsten catalysts. In German.	1.50
41-44 PB L 17651	These frames are illegible.	
45 PB L 17651	Statement concerning yellow ochre supplies received by the catalyst factory from 1934 July 1942. In German.	1.50
46 PB L 17651	Statement concerning production and supply of hydrogenation catalysts for 1926-1942. In German.	1.50
47 PB L 17651	Gas-phase reaction space of the entire German hydrogenation industry (excepting Wolfsheim). In German.	1.50
48 PB L 17651	This frame is illegible.	
49 PB L 17651	Sump phase. In German.	1.50
50-56 PB L 17651	Development of the sump phase up to 1933. In German.	1.50
57-60 PB L 17651	Development of the sump phase since 1933. In German.	1.50
61-62 PB L 17651	Development of the sump phase catalysts. In German. Poorly legible.	1.50
63-64 PB L 17651	Influence of the pressure on the hydrogenation of coal. In German.	1.50
65-66 PB L 17651	Processing of the waste sludge by filtration. In German.	1.50
67-68 PB L 17651	Influence of the operation methods. In German.	1.50
69-73 PB L 17651	These frames are illegible.	
74-75 PB L 17651	Processing of residues. In German. Poorly legible.	1.50
76-79 PB L 17651	These frames are illegible.	
80-85 PB L 17651	Formation by hydrogenation. In German.	1.50
86-87 PB L 17651	Electrode coke from tar- and petroleum-asphalts. In German.	1.50
88-89 PB L 17651	Electrode material for the production of aluminum. In German.	1.50
90-93 PB L 17651	Concerning the limits of solids and asphalt with low admixture of hydrogen in the sump phase. In German.	1.50
94-100 PB L 17651	Round table conference concerning methods of work for the characterization and composition of asphalts. In German.	1.50
101 PB L 17651	"DHD." In German.	1.50
102-124 PB L 17651	These frames are illegible.	
125 PB L 17651	Technical material including distillation. In German.	1.50
126-128 PB L 17651	Pilot plant experimentation furnaces: development of the technical gas phase furnace: development of the coal-furnace, development of the hot-separator. In German. Poorly legible.	1.50
129 PB L 17651	Development of the coal stalls in respect to the throughput. In German.	1.50
130-131 PB L 17651	Machines: coal paste presses. In German.	1.50
132-141 PB L 17651	Draft for lecture on machines. In German.	1.50
142-153 PB L 17651	These frames are illegible.	
154-161 PB L 17651	Progress in the field of measuring, control and automatic supervision of high-pressure installations. In German. Poorly legible.	1.50
162 PB L 17651	Wartime construction of hydrogenation plants. In German.	1.50
163-166 PB L 17651	Remarks concerning wartime-materials in the hydrogenation and production of steel mills. In German.	1.50
167 PB L 17651	Problems concerning air raid precautions. In German.	1.50
168-171 PB L 17651	Accidents in hydrogenation plants. In German.	1.50
172 PB L 17651	Technical conduction of distillations in the mineral-oil industry. In German.	1.50
173-176 PB L 17651	These frames are illegible.	
177 PB L 17651	Summary of the reports of Dr. Gwelin/Dr. Hamacher. In German.	1.50
178-197 PB L 17651	These frames are illegible.	
198-200 PB L 17651	Technical development and important data for Leuna up to 1933. In German.	1.50
201-207 PB L 17651	The development of the hydrogenation at Leuna. In German.	1.50
208 PB L 17651	Concerning the development of the oil department and the sale of motor fuel. In German.	1.50
209 PB L 17651	Data concerning the Reichsamt for economical development. In German.	1.50
210-231 PB L 17651	These frames are illegible.	
232-237 PB L 17651	Anti-knock resistance of aviation fuels. In German.	1.50
238-239 PB L 17651	Concerning the connection between composition and overcharge reaction of C_9 motor fuels. In German.	1.50
240 PB L 17651	Aviation gasolines type O.Z.87 from various works. In German	1.50
241-259 PB L 17651	These frames are illegible.	
260-263 PB L 17651	Extraction of toluene from gasolines. In German. Poorly legible.	1.50
264-265 PB L 17651	Phenols. In German. Poorly legible.	1.50

266-267 PB L 17651 — Production of utilizable phenols in hydrogenation treatment of various raw materials. In German. 1.50

268 PB L 17651 — Concerning the extraction of acetone, methyl-ethyl-ketone and acetonitrile from brown coal-sump-phase-light gasoline at Leuna. In German. 1.50

269-272 PB L 17651 — Concerning lubricating oils. In German. 1.50

273-274 PB L 17651 — The Propane process. In German. Poorly legible. 1.50

275-299 PB L 17651 — These frames are illegible.

300-302 PB L 17651 — Position of contracts of the I. G. in the field of hydrogenation. In German. Poorly legible. 1.50

303-324 PB L 17651 — These frames are illegible.

325-357 PB L 17651 — Lecture by Dr. Giesen on the occasion of the 25th anniversary of the ammonia-works Merseburg on May 26, 1941. In German. Most pages illegible. 3.50

358-367 PB L 17651 — These frames are illegible.

368-378 PB L 17651 — Development of the methanol-synthesis and of the catalytic high-pressure-hydrogenation following the ammonia-synthesis up to the present stage. In German. 1.50

379-401 PB L 17651 — These frames are illegible.

PB L 70063. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Organic preparations. (FIAT Microfilm Reel G 23, Frames 1-587) 1932-1946. 586 f. Price: Microfilm-$6.00 - Enlargement print-$59.00

This reel prepared by FIAT investigators in Germany consists of analysis directions and manufacturing instructions for organic preparations. 130 individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German. This film will reproduce badly.

Frames	Title	Price
1-2 PB L 70063	Analysis of vinyl chloride. In German. Duplicated on Reel G 22.	$1.50
3-4 PB L 70063	Butyraldehyde. Oct 1941. In German.	1.50
5 PB L 70063	Hexamethylenediamine. Oct 1941. In German.	1.50
6 PB L 70063	Trimethylolpropane. Oct 1941. In German.	1.50
7-10 PB L 70063	Ethylbenzene. Oct 1941. In German.	1.50
11 PB L 70063	Analysis of 1-hydroxy-naphthalene-4,6-disulfonic acid. Mar 1942. In German.	1.50
12 PB L 70063	Analysis of 1-(2'-sulfophenyl)-3-phenyl-5-pyrazalone. Oct 1941. In German.	1.50
13 PB L 70063	Analysis of 2-amino-1-hydroxy-benzene-4-sulfamide. Mar 1942. In German.	1.50
14 PB L 70063	Analysis of 6-chloro-2-amino-1-hydroxy-benzene-4-sulfonic acid. Mar 1942. In German.	1.50
15-16 PB L 70063	Analysis of 2-amino-5-chlorobenzoic acid. Oct 1942. In German.	1.50
17-21 PB L 70063	Determination of phenols in waste waters. Mar 1942. In German.	1.50
22-25 PB L 70063	Analysis of ammonium bicarbonate. Mar 1942. In German.	1.50
26-29 PB L 70063	Analysis of urea. Mar 1942. In German.	1.50
30 PB L 70063	Analysis of acetonitrile. Mar 1942. In German.	1.50
31 PB L 70063	Analysis of methyldiethanolamine. Mar 1942. In German.	1.50
32 PB L 70063	Analysis of diethylethanolamine. Mar 1942. In German.	1.50
33-40 PB L 70063	Analysis of styrene. Mar 1942. In German.	1.50
41-42 PB L 70063	Analysis of tricresylphosphate. Mar 1942. In German.	1.50
43 PB L 70063	Analysis of dibutyl phthalate. Mar 1942. In German.	1.50
44 PB L 70063	Analysis of 4,4'-diamino-3,3'-dimethyldiphenyl-6,6'-disulfonic acid. Mar 1942. In German.	1.50
45-48 PB L 70063	Analysis of trifluoromethyl-m-benzoyl fluoride. Mar 1942. In German.	1.50
49-51 PB L 70063	Analysis of 1-amino-2-methyl-anthraquinone. Mar 1942. In German.	1.50
52-55 PB L 70063	Analysis of 1,4-butanediol. Oct 16, 1942. In German.	1.50
56-58 PB L 70063	Analysis of ammonium chloride. Oct 1942. In German.	1.50
59-66 PB L 70063	Analysis of olefines. Mar 1943. In German.	1.50
67-71 PB L 70063	Determination of carbonyl groups in aldehydes and ketones. Mar 1943. In German.	1.50
72-73 PB L 70063	Analysis of dichlorobenzoic acid. Mar 1943. In German.	1.50
74 PB L 70063	Analysis of 4,4'-dichlorobenzophenone chloride. Mar 1943. In German.	1.50
75-78 PB L 70063	Hydroxylamine. Mar 19, 1943. In German.	1.50
79-137 PB L 70063	A list of I. G. Farben analysis procedures. No. 1-662. n. d. In German.	6.00
138-144 PB L 70063	Manufacture of acryl nitrile. Sep 24, 1945. In German.	1.50
145-149 PB L 70063	Acrylic acid methyl or ethyl ester. By v. Bank. Aug 17, 1945. In German.	1.50
150-151 PB L 70063	Production of acrylic acid butyl ester. By v. Bank and Baur. Aug 2, 1945. In German.	1.50
152-153 PB L 70063	Methacrylic acid methyl ester. By v. Bank and Baur. Aug 2, 1945. In German.	1.50

154-155 PB L 70063 — Manufacture of acrylic acid. By v. Bank and Baur. Aug 2, 1945. In German. 1.50

156-160 PB L 70063 — Manufacture of p'-methyl-m'-ethoxy-diphenylamine. Jun 11, 1945. In German. 1.50

161-167 PB L 70063 — Production of ethylamines. By Rothhaas. Sep 7, 1945. In German. 1.50

168-169 PB L 70063 — Production of butylamines. By Rothhaas. Sep 7, 1945. In German. 1.50

170-174 PB L 70063 — Ethylene. By Donner. Sep 7, 1945. In German. 1.50

175-183 PB L 70063 — Ethylene oxide. By Roser. Aug 3, 1945. In German. 1.50

184-187 PB L 70063 — Glycol ethers. Oct 10, 1945. In German. 1.50

188-201 PB L 70063 — Glycol. By Roser. Aug 1945. In German. 1.50

202-222 PB L 70063 — Manufacture of Pentaerythrite LG (Pentaerythrite). Dec 1, 1941. In German. 2.50

223-229 PB L 70063 — Manufacture of beta-aminoanthraquinone. Oct 11, 1945. In German. 1.50

230-236 PB L 70063 — Amino aldehyde. Feb 7, 1934. In German. 1.50

237-243 PB L 70063 — Anthranilic acid. Feb 12, 1938. In German. 1.50

244 PB L 70063 — Manufacture of potassium anthranilate. Jul 31, 1939. In German. 1.50

245-246 PB L 70063 — Manufacture of aminoxone (amino-hydroxy-anthraquinone). Jan 17, 1940. In German. 1.50

247-250 PB L 70063 — Manufacture of anthraquinone-sulfonic acids. Jan 10, 1946. In German. 1.50

251-254 PB L 70063 — Manufacture of acetonecyanhydrin. By Dittus. Aug 8, 1945. In German. 1.50

255-257 PB L 70063 — Manufacture of purpurin amide (tri-hydroxy amino anthraquinone). By Höpft. Sep 12, 1945. In German. 1.50

258-260 PB L 70063 — Manufacture of hexamethylene-diamine adipate. By Höpft. Sep 12, 1945. In German. 1.50

261-263 PB L 70063 — Manufacture of epsilon-amino-caprolactam. By Höpft. Sep 12, 1945. In German. 1.50

264 PB L 70063 — Manufacture of benzanthrone, sublimed. Jan 18, 1932. In German. 1.50

265-270 PB L 70063 — Manufacture of butanol. By Nicolai and Bauer. Aug 2, 1945. In German. 1.50

271-273 PB L 70063 — Manufacture of butyraldehyde. By Nicolai. Sep 19, 1945. In German. 1.50

274-277 PB L 70063 — Manufacture of butyrolactone. Oct 8, 1945. In German. 1.50

278-282 PB L 70063 — Manufacture of vinylpyrrolidone and the divinyl ethers of polyhydric alcohols. By Christ. Aug 9, 1945. In German. 1.50

283-288 PB L 70063 — Manufacture of ethyl-o-toluidine. Aug 16, 1945. In German. 1.50

289-290 PB L 70063 — Manufacture of hydroxyethyl-aniline. By Schweizer. Sep 29, 1945. In German. 1.50

291-292 PB L 70063 — Manufacturing instructions for aniline distillation. Apr 1933. In German. 1.50

293 PB L 70063 — Manufacture of aniline. Jul 19, 1945. In German. 1.50

294-299 PB L 70063 — Manufacture of 1-nitrobenzene-3-sulfonic acid. By Heinze. Aug 27, 1945. In German. 1.50

300-301 PB L 70063 — Manufacture of sulfanilic acid. By Heinze. Aug 27, 1945. In German. 1.50

302-303 PB L 70063 — Manufacture of sulfanil salt. By Heinze. Sep 7, 1945. In German. 1.50

304-305 PB L 70063 — Manufacture of 2-toluidine-5-sulfonic acid. By Heinze. Sep 18, 1945. In German. 1.50

306-307 PB L 70063 — Manufacture of sodium 2-toluidine sulfonate. By Heinze. Sep 10, 1945. In German. 1.50

308-309 PB L 70063 — 3-Toluidine-6-sulfonic acid. By Heinze. Sep 10, 1945. In German. 1.50

310-313 PB L 70063 — Manufacture of the calcium salt of 3-toluidine-6-sulfonic acid. By Heinze. Sep 3, 1945. In German. 1.50

314-315 PB L 70063 — Manufacture of sodium 3-toluidine-6-sulfonate. By Heinze. Sep 3, 1945. In German. 1.50

316-317 PB L 70063 — Manufacture of 4-toluidine-3-sulfonic acid. By Heinze. Sep 6, 1945. In German. 1.50

318-319 PB L 70063 — Manufacture of sodium 4-toluidine-3-sulfonate. By Heinze. Sep 3, 1945. In German. 1.50

320-321 PB L 70063 — Manufacture of sodium 2-naphthyl-amine-1-sulfonate. By Heinze. Sep 11, 1945. In German. 1.50

322-326 PB L 70063 — Manufacture of 2-naphthylamine-1-sulfonic acid. By Heinze. Sep 14, 1945. In German. 1.50

327-329 PB L 70063 — Manufacture of Dahl acid. Sep 21, 1945. In German. 1.50

330-333 PB L 70063 — Manufacture of 1-aminophenol. By Schweizer. Oct 17, 1945. In German. 1.50

334-335 PB L 70063 — Manufacture of oxethylethyl-aniline-toluene. By Schweizer. Oct 11, 1945. In German. 1.50

336-384 PB L 70063 — Manufacture of tanning material and tanning auxiliaries. Mar 25, 1942. In German. 5.00

385-387 PB L 70063 — Manufacture of sodium alpha-naphthalenesulfonate. Sep 3, 1945. In German. 1.50

388-391 PB L 70063 — Manufacture of sublimed benzoic acid. Jul 17, 1945. In German. 1.50

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392-393 PB L 70063 — Manufacture of crude benzoic acid II. Jul 26, 1945. In German. 1.50

394-397 PB L 70063 — Purifying crude benzoic acid. Jul 17, 1945. In German. 1.50

398-401 PB L 70063 — Manufacture of benzonitrile. Aug 10, 1945. In German. 1.50

402-406 PB L 70063 — Manufacture of benzenesulfonic acid methyl ester. n. d. In German. 1.50

407-410 PB L 70063 — Manufacture of 4-chloraniline-1-sulfonic acid. Sep 13, 1945. In German. 1.50

411-412 PB L 70063 — Manufacture of ethyl-2-toluidine-4-sulfonic acid. Sep 14, 1945. In German. 1.50

413-417 PB L 70063 — Manufacture of ethyl-alpha-naphthylamine. Oct 14, 1944. In German. 1.50

418-422 PB L 70063 — Manufacture of 2-ethylamino-4-hydroxy-1-methylbenzene. By Schweizer. Oct 16, 1945. In German. 1.50

423-424 PB L 70063 — Manufacture of aminocarboxylic acid. Jun 17, 1941. In German. 1.50

425-426 PB L 70063 — Manufacture of 4-amino-1,9-anthrapyrimidine. Oct 24, 1938. In German. 1.50

427-431 PB L 70063 — Manufacture of isopyrimidine. Mar 1, 1939. In German. 1.50

432-433 PB L 70063 — Manufacture of purified anthranilic acid. Mar 3, 1939. In German. 1.50

434-436 PB L 70063 — Manufacture of aminoviolanthrene. Feb 21, 1934. In German. 1.50

437-439 PB L 70063 — Manufacture of amine from alizarin orange. Oct 21, 1932. In German. 1.50

440-441 PB L 70063 — Manufacture of mercaptan. Sep 13, 1939. In German. 1.50

442-443 PB L 70063 — Manufacture of 1-amino-4-methoxy-1-methylbenzene-6-sulfonic acid. Sep 11, 1945. In German. 1.50

444-446 PB L 70063 — Manufacture of 2-toluidine-4,5-disulfonic acid. Sep 20, 1945. In German. 1.50

447-450 PB L 70063 — Manufacture of 1-amino-2-methylanthraquinone. Feb 4, 1934. In German. 1.50

451-454 PB L 70063 — Manufacture of sulfoxone. Jan 18, 1934. In German. 1.50

455-457 PB L 70063 — Manufacture of "sulfamido acid." Jan 18, 1934. In German. 1.50

458-461 PB L 70063 — Manufacture of 5-amino-8-hydroxy-1,4-naphthoquinoneimine. Jul 12, 1940. In German. 1.50

462-463 PB L 70063 — Manufacture of dioxamine acid. Feb 2, 1934. In German. 1.50

464-474 PB L 70063 — Manufacture of "aminocoliva." Dec 14, 1937. In German. 1.50

475-477 PB L 70063 — Manufacture of "Ruby" amine. Dec 7, 1938. In German. 1.50

478-479 PB L 70063 — Manufacture of "Rubinmarkantan." Apr 6, 1936. In German. 1.50

480-483 PB L 70063 — Manufacture of aminobenzimide. Aug 7, 1936. In German. 1.50

484 PB L 70063 — Manufacture of 1-amino-2-hydroxyanthraquinone from alizarine. Dec 31, 1935. In German. 1.50

485-486 PB L 70063 — Manufacture of "dianthren acid." Jul 11, 1935. In German. 1.50

487-490 PB L 70063 — Manufacture of acetonitril and propionitril. Aug 9, 1945. In German. 1.50

491-494 PB L 70063 — Manufacture of 8-aminoquinaldine. Oct 30, 1940. In German. 1.50

495-498 PB L 70063 — Manufacture of purified benzanthrone. Jan 19, 1934. In German. 1.50

499-513 PB L 70063 — Manufacture of benzanthrone-Bz1-sulfoxide acetic acid. Apr 24, 1940. In German. 1.50

514-516 PB L 70063 — Manufacture of naphthoquinaldine (methylbenzoquinoline). Sep 20, 1945. In German. 1.50

517-533 PB L 70063 — Storing and distillation of inflammable liquids. Apr 1933. In German. 2.00

534-535 PB L 70063 — Desulfurizing of benzene. n. d. In German. 1.50

536-539 PB L 70063 — Manufacture of 5-benzoyl-benzoxazolone-2'-carboxylic acid. By Heinze. Dec 18, 1945. In German. 1.50

540-541 PB L 70063 — Manufacture of benzylsulfanilic acid. By Heinze. Sep 12, 1945. In German. 1.50

542-546 PB L 70063 — Manufacture of Bz.1-bromobenzanthrone. Jan 27, 1942. In German. 1.50

547-550 PB L 70063 — Manufacture of p-benzylaminophenol powder. Feb 6, 1943. In German. 1.50

551-555 PB L 70063 — Manufacture of benzenesulfonic acid-beta-chlorethyl ester. By Weiss. Oct 10, 1945. In German. 1.50

556-559 PB L 70063 — Manufacture of benzoin. Oct 15, 1941. In German. 1.50

560-563 PB L 70063 — Manufacture of 2-acetamido-1-chloroanthraquinone. Mar 14, 1935. In German. 1.50

564-571 PB L 70063 — Manufacture of 1-chloro-2-amino-anthraquinone. Apr 5, 1940. In German. 1.50

572-576 PB L 70063 — Manufacture of 2-amino-1-chloroanthraquinone. Mar 15, 1935. In German. 1.50

577-578 PB L 70063 — Manufacture of 1-chloraniline-5-sulfonic acid. By Heinze. Aug 29, 1945. In German. 1.50

579-581 PB L 70063 — Manufacture of 4-chloro-1-aminobenzoyl-o-benzoic acid. By Heinze. Sep 13, 1945. In German. 1.50

582 PB L 70063 — Manufacture of 2-chloro-4-toluidine-5-sulfonic acid. Sep 3, 1945. In German. 1.50

583 PB L 70063 — This frame is missing.

584-587 PB L 70063 — Instruction for purifying of 2-chloro-4-toluidine-5-sulfonic acid. By Heinze. Aug 30, 1945. In German. 1.50

Miscellaneous Chemicals (contd)

PB L 70063-S. I. G. FARBENINDUSTRIE A. G., LUDWIGSHAFEN, GERMANY. Organic preparations. (FIAT Microfilm Reel S 23, Frames 1-587, abstract cards) 1932-1946. 130 p. Price: Microfilm-$3.00 - Photostat-$9.00
Brief abstracts of the individual items on the above reel, S 23, PB L 70063, prepared by FIAT personnel in Germany.

PB L 7736-83. TORNESCHE HOLZZUCKER UND FUTTERHEFE FAB. HH. TORNESCH-HAMBURG, GERMANY. Percolation directions. Dec 1943. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. The instructions given deal with the feeding of the percolators, the actual percolation, and the emptying of the percolators. Mention is made of seven errors frequently occurring in percolating. In German.

PB L 7736-89. BRETTSCHNEIDER. Pressure heating of further hydrolized worts. A summary. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) Jan 1939. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00
This document is a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492. Worts obtained from wood by intermittent pressure percolation contain sugars which cannot be fermented to alcohols. The purpose of further hydrolysis (at 100° C. for 12 hours) is to decompose these sugars with water and transform them into compounds capable of being fermented to alcohols. In German.

PB L 7736-811. SCHOLLER, H. Saccharification of wood. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) 1939. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
This document, a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492, is a reprint from "Chemiker-Zeitung" 1939, Jahrg. 63, No. 98/99, p. 737 and No. 100/101, p. 752. In German.

PB L 7736-812. SCHOLLER, H. Obtaining from wood as raw material sugar, alcohol, and yeast for feeding purposes. (Supplement to PB 7736) (FIAT Final Rept 499, Supp.) 1936. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
This document, a supplement to the report "Production of wood sugar in Germany and its conversion to yeast and alcohol," see Bibliography, vol. 1, p. 492, is a reprint from "Chemiker-Zeitung" 1936, Jahrg. 60, No. 29, p. 293. In German.

PB L 81403. SCHOELLIG. Separation of ethylene from higher hydrocarbons by activated charcoal. (AAF T-2 Translation 988). May 1947. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00
Ethylene can be separated from the unsaturated hydrocarbons of the C four series, such as butylene and butadiene as well as from the lower existing hydrocarbons and inert gases, by absorption of activated charcoal. The ethylene obtained is claimed to be approximately 98.5% pure, the balance being hydrogen. Actual test results indicate that such a high concentration of pure ethylene could not be reached.

*PB L 81572. SNOWDON, F. F. Interrogation of Prof. Georg Jayme, Director Research on Pulp and Paper Chemistry at Technische Hochschule, Darmstadt. (BIOS Interrogation Rept 472). May 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report contains very meager information concerning sulfite digesters for sulfite pulp process, wood sugar processes, and chemicals from wood and straw. Mention is made of two patents for the production of furfural and high-alpha-cellulose in good yield from straw (DRP 719890 and 744868 (1940)).

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Electronics

PB L 85176. GLANVILLE, T. J. and BROOKS, R. C. Japanese electronic equipment: Construction materials. (Naval Tech Mission to Japan Rept E-19) Dec 1945. 14 p. Price: Mimeo-50¢
In the early part of the war it was the general policy of Japanese authorities to specify standard commercial materials of the types generally available before the war for the manufacture of electronic equipment. The apparatus produced was generally of robust construction and adequately equipped with instruments for calibration and adjustment. In time certain standard raw materials became scarce. However, substitutes were developed and included in the less critical parts of the equipment, where their use would not impair working efficiency. Examples of such substitutes were plywood, used for secondary panelling, bakelite frames for condensers, and glass, ebonite or porcelain supports for components. It was not until January 1945 that research of this nature was placed on a satisfactory basis with the founding of the Second Japanese Naval Technical Research Bureau, with the objects of coordinating experiments in design and developing substitute raw materials. In view of the vicissitudes of the Japanese Navy at that time little attention was paid to shipborne electronic equipment. Most of the work was being directed towards airborne apparatus.

PB L 81646. GUNN, ROSS. The electrical charge on precipitation at various altitudes and its relation to thunderstorms. Feb 1947. 6 p. Price: Microfilm-$1.00 Photostat-$1.00
The free electrical charges on individual precipitation particles were measured at various altitudes up to 26,000 feet by an induction method that avoided touching them. In a [illegible] weak cold front exhibiting no thunderstorm activity, and [illegible] having the freezing level at 11,000 feet, positive charges averaging 0.033 e.s.u. were observed from 10,000 to 26,000 feet. Negative charges averaging 0.04 e.s.u. were measured from the surface up to 20,000 feet. Positive charges were not observed below 10,000 feet and negative ones were not detected above 20,000 feet. Between these levels a mixture existed. The free charge on a large number of the particles was so great that the electric field at their surface was an appreciable fraction of the breakdown field for air, showing that powerful electrifying agencies exist even under rather quiet frontal conditions. Electric field measurements on the airplane showed that the particle charges were largely neutralized by nearby charges, presumably on the air or on the tiny cloud droplets. It is shown that the removal of this neutralizing charge will immediately produce thunderstorm electric fields and potentials. A time plot of the electric field on the surface of a fying airplane during the interval of a lightning strike is given. Reprinted from the Physical Review, v. 71, No. 3, Feb. 1, 1947.

PB L 85534. HAEFNER, R. J. Power amplifier and bridge for the measurement of impedance at high power level (Columbia Univ Div of War Res Rept P35/R653) Feb 1944. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report describes a power amplifier and bridge constructed by and for the use of this Laboratory which enable impedance measurements to be carried out at a power level considerably higher than that permitted by the use of the standard impedance bridges and amplifiers previously available in the Laboratory. The bridge is of the resonance type employing a Campbell-Shackelton shielded ratio arm assembly as a nucleus, together with calibrated variable inductors and resistances for the measurement of impedances having negative reactance in terms of equivalent series reactance corresponding to inductances ranging from .25 mh to 50 mh at frequencies from 10 kc to 40 kc and from .25 mh to 10 mh at frequencies from 10 kc to 80 kc. Impedances having positive reactance in the ranges mentioned above may be measured in terms of equivalent series capacitance using a decade condenser and a calibrated variable air condenser. The equivalent series resistive component of the unknown impedance is measured by means of

a decade resistance and fixed resistances in series. The construction of the bridge is such that circuits other than the resonance type may be readily set up.

PB L 81304. HASTINGS, CHARLES E. NACA radio ground-speed system for aircraft. (Natl Advisory Committee for Aeronautics Rept L-477) Feb 1943. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00

A method that utilizes the Doppler effect on radio signals for determining the speed of an airplane and the distance traveled by the airplane has been developed and found to operate satisfactorily. In this method, called the NACA radio groun-speed system, standard readily available radio equipment is used almost exclusively and extreme frequency stability of the transmitters is not necessary. No complicated equipment need be carried in the airplane, as the standard radio transmitter is usually adequate. Actual flight tests were made in which the method was used and the results were consistent with calibrated air-speed indications and stop-watch measurements. Inasmuch as the fundamental accuracy of the radio method is far better than either of the checking systems used, no check was made on the limitations of the accuracy. Photographs and diagrams are included.

PB L 85396. OLSON, VERLAND A. A moving COHO conversion unit. (Mass Institute of Technology. Radiation Lab Rept 975). Apr 1946. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

It is possible to operate a coherent pulse Doppler MTI system from a moving station. For this, it is necessary to add a suitable phase shift to the MTI timing oscillator so as to cancel out ground speed. This phase shift may be added by a single-side-band mixing system. Such a system, consisting of a three step dual channel modulator complete with oscillator for generating the correction for ground speed, is described in this report. Preliminary tests on an MTI ground system have shown that it is possible to "stop" any moving target at will.

PB L 85177. SCHWALM, E. E. and others. Japanese R.F. transmission lines, wave guides, wave guide fittings and dielectric materials. (Naval Tech Mission to Japan Rept E-20) Dec 1945. 14 p. Price: Mimeo-50¢

In the design and manufacture of radio frequency transmission lines, Japanese design engineers were thorough and capable from a theoretical standpoint, but lacked the mechanical skill to put their ideas into practice. Japanese manufacturing establishments were of little help; most finished products appeared crude and amateurish by U.S. standards. This report covers Japanese naval technique in transmission lines, coaxial lines, wave guides, line fittings, duplexers, phase shifters, and kindred subjects. The use of polystyrene as dielectric material for coaxial lines is also discussed. Theoretically, the work was good, but practically the test equipment was simple and inadequate for making the necessary precise measurements. Consequently, the Japanese never were quite certain of their results. Nothing of more than casual interest was discovered.

PB L 2157-R. SIEMENS-REINIGER-WERKE A. G., BERLIN. Siemens X-ray equipment. (Supersedes PB 2157 and PB 2158). n. d. 248 p. Price: Microfilm-$5.00 - Photostat-$17.00

Sales pamphlets on X-ray equipment for all purposes of diagnosis and therapy. In German. For abstracts of original German articles see this Bibliography, v. 1, p. 154.

PB L 85933. U. S. AERONAUTICAL BOARD. INTERFERENCE REDUCTION SUBCOMMITTEE. Radio interference bibliography 0.01: Index. n. d. 4 p. Price: Microfilm-$1.00- Photostat-$1.00

PB L 85934. U. S. AERONAUTICAL BOARD. INTERFERENCE REDUCTION SUBCOMMITTEE. Selection of bibliography on radio interference suppression. Part I. Published articles. 1946. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 85935. U. S. AERONAUTICAL BOARD. INTERFERENCE REDUCTION SUBCOMMITTEE. Selection of bibliography on radio interference suppression. Part II. Government reports. 1947. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 85936. U.S. NAVAL RESEARCH LABORATORY. AIRBORNE RADIO DIVISION. Practical design of transmission-line networks for broad-band filter applications. (Rept R 2770) Sep 1946. 147 p. Price: Microfilm-$4.50 - Photostat-$15.00.

This report covers the development of several new types of electrical wave filters, employing transmission line elements for use in the Very-High and Ultra-High frequency bands, where ordinary lumped-constant filters, for various reasons, are inconvenient or difficult to realize. The simple concepts and approaches, however, used in lumped-constant network analysis, have been maintained in these new applications in order to facilitate their understanding and efficient use. Comprehensive data and curves are presented for theoretical analysis, design factors, aand constructional procedures, along with comparisons between various predicted and experimental results. The practical networks, resulting from the theoretical analyses, may be constructed to provide sharp cut-off, low (pass-band) insertion loss, high (attenuation band) rejection ratios, high power-handling capability, and compact, rugged mechanical form. It is pointed out that the requirements of any one network would not usually include every one of these items, but that each case would have its own peculiar requirement. The great diversity of network configurations available from this report plus the even greater number which have not been thoroughly investigated as yet, provide a wide avenue of solution to network problems within their range of application. A brief review of the theory of the general ladder filter network, on which the analyses of these networks is based, is included for reference.

PB L 85946. VASAKA, C. S. Specifications and design characteristics for aeronautical radio and radar laboratory screen-room model 1A and 1B. (Naval Air Experimental Station. Aeronautical Radio and Radar Lab Rept 5-48) Aug.1947. 41 p. Price: Microfilm-$2.00 - Photostat-$5.00.

In radio interference evaluation and suppression, measurements of field strength are made of levels as low as 1 microvolt/meter, and since the area background level of undesired radio interference may be usually as high as 100,000 microvolts/meter it becomes evident that a shielding enclosure or screen-room with an attenuation of a minumum of 100 DB will be required in which tests may be performed with any degree of accuracy. The screen-room described herein is designed for 117 DB (ratio of 700,000 to 1) attenuation from 0.15 to 1000 Mc, exclusive of the attenuation of the power line filters used. The filters used have adequate attenuation and they do not lower the overall attenuation of the screen-room below 100 DB. Complete details of construction are given in the body of this report. Design features include: "cell-type" double copper shield sections, construction outside the laboratory, portability and ease of re-location, ease of assembly, ease of adding or removing sections, best power line filters available commercially, ease of connecting piped services into the room, and low cost of material and labor involved. A screen-room constructed at ARRL in accordance with this specification has proved very satisfactory in use. Using the most sensitive radio receivers available in the frequency range of 0.15 to 1000 Mc, no measurable radio interference could be detected inside the screen-room. In addition, the actual attenuation in the MHF and VHF range was well over 100 DB, which was the maximum attenuation measurable with the field strength meters available. Tests are scheduled for measuring higher than 100 DB attenuations using larger output transmitters and attenua-

tion pads into the input of the field strength meters. Screen-rooms constructed in accordance with this specification may be used effectively in laboratories where various types of tests are performed, such as: radio interference measurements, RF calibration, radio inspection tests, medical equipment measuring minute voltages, shielding enclosures to prevent the increase of the area background radio interference, etc.

Generators, Motors, Transmission, Distribution and Allied Equipment

PB L 7756-S. BROWN, BOVERI UND CIE. A. G. Drawings for marine electric motors (11). (Supplement to Technical survey of electric motor industry in Germany, by Roscoe H. Smith and Gustav E Petterson, FIAT Final Report 498, PB 7756, vol. 1, p. 488) 1943. 121 p. Price: Microfilm-$3.00 - Photostat-$9.00
This document comprises 11 detail and assembly drawings for a-c motors for operating rudders, bilge pumps, ventilating equipment, etc. In German.

PB L 81407. HOLTON, D. L. Characteristics of Bosch retraction motor (German). (AAF Tech Rept Z154). Apr 1947. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
Special features of the German Bosch Retraction Motor worthy of consideration are presented with illustrations, graphs, and tables accompanying the text. This report gives data on construction, operation, maintenance, and manufacture for comparison with similar motors of American design.

PB L 81409. JAMES, ROY L. Report on Swiss radio-frequency signal generator, model no. 601. (Analysis made by General Radio Co.). (AAF Tech Rept 1114). May 1947. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report gives description of a signal generator, electrical performance and mechanical evaluation. Conclusions reached were that (1) Electrical performance is, in most respects, inferior to U. S. standards, (2) The equipment is unduly massive, (3) Only in respect to frequency calibration of the main dial and low frequency drift characteristics, is it above the average. The mechanical workmanship in general is excellent. Tables, graphs, circuit diagrams, and photographs are included.

PB L 85178. LACY, P. D. Power supplies for Japanese electronics. (Naval Tech Mission to Japan Rept E-15) Jan 1946. 10 p. Price: Mimeo-25¢
Japanese power supply component design remained static through the war years. The only marked change was a severe reduction in quality due to scarcity of required raw materials, and a decrease in the unit efficiency of a highly expanded production field. There was a lack of integration of production design of power supply units in the overall equipment design, due to the extreme security measures taken by the Japanese Navy and Army. For example, the naval arsenal responsible for production of an electronic unit would supply specifications to a factory, often bypassing the entire engineering structure of the company. The factory would then produce and deliver the unit to the arsenal. Naval acceptance specifications were very loose and usually were left up to the factory. Later, the arsenal would incorporate the power supply unit into the final equipment. In addition, failure to remedy faults found in the field hindered coordination of equipment design.

PB L 81468. U. S. WAR DEPARTMENT. Maintenance manual: Portable power plant for 60-inch antiaircraft searchlight, model 1942. (Manufactured by General Electric Co., Schenectady, N. Y.). (Tech Manual 5-7051). Jul 1944. 280p. Price: Microfilm-$7.00 - Photostat-$28.00

PB L 81445. U. S. WAR DEPARTMENT. Maintenance manual: Portable power plant for 60-inch antiaircraft searchlight, model 1942A. (Manufactured by General Electric Co., Schenectady, N. Y.). (Tech Manual 5-7117). Jul 1944. 280 p. Price: Microfilm-$7.00 - Photostat-$28.00

PB L 81458. U. S. WAR DEPARTMENT. Operator's manual: Portable power plant for 60-inch antiaircraft searchlight, model 1942. (Manufactured by General Electric, Schenectady). (Tech Manual 5-7049). Jun 1943. 89 p. Price: Microfilm-$3.00 - Photostat-$9.00

PB L 81450. U. S. WAR DEPARTMENT. Operator's manual: Portable power plant for 60-inch antiaircraft searchlight, model 1942A. (Manufactured by General Electric, Schenectady, N. Y.). (Tech Manual 5-7115). Nov 1943. 86 p. Price: Microfilm-$3.00 - Photostat-$9.00

PB L 81481. U. S. WAR DEPARTMENT. Parts and price lists for portable power plant for searchlight, 60-inch, General Electric model 1942. (Tech Manual 5-7048). Jun 1943. 48 p. Price: Microfilm-$2.00 - Photostat-$5.00

PB L 81467. U. S. WAR DEPARTMENT. Parts catalog: Portable power plant for 60-inch antiaircraft searchlight, model 1942A. (Manufactured by General Electric, Schenectady). (Tech Manual 5-7116). Nov 1943. 93 p. Price: Microfilm-$3.25 - Photostat-$10.00

PB L 85510. U. S. WAR DEPARTMENT. Power unit PU-19/FRC. (Tech Manual 11-986) Sep 1945. 243 p. Price: Microfilm-$7.00 - Photostat-$25.00
Power unit PU 19/FRC is a portable, self-contained power plant consisting of a Diesel engine and an alternating-current generator, which are connected by a mechanical coupling. It is designed to supply single-phase ac for fixed radio installations.

PB L 85506. U. S. WAR DEPARTMENT. Power unit PU-21/U. (Tech Manual 11-974). Jun 1945. 109 p. Price: Microfilm-$3.50 - Photostat-$11.00
Power unit PU-21/U is a lightweight, gasoline-engine driven, electrical generating unit.

Miscellaneous

*PB L 86010. RICHARDS, E. S. Survey of German electroplating methods. (BIOS Final Rept 1009, Item 21, 31). Sep-Oct 1946. 93 p. Price: Microfilm-$3.25 - Photostat-$10.00
Twenty-three firms were visited in order to investigate and report on the methods and equipment used for polishing and electroplating in Germany, with special reference to automatic polishing and plating of continuous strip, silverplating, and the gliding of fountain pen nibs and fittings. A description

of each visit is given first, followed by observations and conclusions reached. 32 illustrations and sketches of machinery used are included.

PB L 81479. U. S. WAR DEPARTMENT. Operator's manual and parts and price lists: Model 1941A, 60-inch antiaircraft searchlight and control station. (Manufactured by General Electric, Schenectady). (Tech Manual 5-7040). 354 p. Price: Microfilm-$7.00 - Photostat-$36.00

PB L 81480. U. S. WAR DEPARTMENT. Operator's manual: Model 1941, 60-inch antiaircraft searchlight equipment. (Manufactured by General Electric, Schenectady, N. Y.). (Tech Manual 5-575). Jul 1944. 335 p. Price: Microfilm-$7.00 - $34.00

PB L 85513. U. S. WAR DEPARTMENT. Parts and price lists for 24-inch searchlight equipment, model 1942; portable power plant manufactured by General Electric Co. (Tech Manual 5-7104). Dec 1942. 81 p. Price: Microfilm-$3.00 - Photostat-$9.00

PB L 81466. U. S. WAR DEPARTMENT. Parts and price lists: 60-inch antiaircraft searchlight and control station, model 1942. (Manufactured by General Electric, Schnectady). (Tech Manual 5-7046). Jun 1943. 178 p. Price: Microfilm-$5.25 - Photostat-$18.00

PB L 81448. U. S. WAR DEPARTMENT. Parts catalog: 60-inch antiaircraft searchlight and control station, model 1942A. (Manufactured by General Electric, Schenectady, N.Y.). (Tech Manual 5-7112). Nov 1943. 212 p. Price: Microfilm-$6.25 - Photostat-$22.00

PB L 81444. U. S. WAR DEPARTMENT. Searchlight, 60-inch General Electric model 1942 and control station. (Tech Manual 5-7045). Jun 1943. 162 p. Price: Microfilm-$5.00 - Photostat-$17.00

PB L 85503. U. S. WAR DEPARTMENT. Signal lamp equipments EE-80 and EE-80A. (Tech Manual 11-390). Sep 1944. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00

FUELS AND LUBRICANTS

PB L 86465. DEWEY, D. R. Wartime research on synthetic fuels by the Kaiser Wilhelm Institut fur Kohlenforschung. (Naval Tech Mission in Europe. Tech Rept 110-45) Jun 1945. 8p. Price: Microfilm-$1.00 Photostat-$1.00

Wartime research by the Kaiser Wilhelm Institut für Kohlenforschung on the Fischer-Tropsch synthesis has been primarily directed along the line of iso-paraffin synthesis. Good yields of iso-paraffins have been obtained using the normal synthesis gas at three hundred (300) atmosphere pressure and four hundred twenty (420) to four hundred fifty (450) degrees centigrade over an alumina thoria catalyst. Zinc oxide-alumina has also been used successfully. About one hundred twenty (120) to one hundred thirty (130) grams per cubic meter of synthesis gas have been obtained as liquid products of over ninety (90) percent iso-paraffins. Synthesis of aromatics has been studied, using thirty (30) atmosphere pressure and five hundred (500) degrees centigrade. However, very poor yields and napthene side reactions do not make this process look promising. Further work was abandoned by KWI for the duration of the war. Fischer-Tropsch synthesis using iron catalysts was studied, but inferior operations resulting from this catalyst made it only desirable as a wartime substitute for scarce chromium.

PB L 20861. I. G. FARBENINDUSTRIE A.G. Files of Dr. Günther, of Dr. Pier's staff at Ludwigshafen, on various hydrogenation topics. (FIAT Reel LP-125, Frames 1-661, 16mm microfilm). Feb 1946. 661 f. Price: Microfilm-$6.00 - Enlargement Print-$66.50.

There are 88 individual items listed below which will be available as enlargement prints only. The entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
1 - 9 PB L 20861	5058/6434 comparative experiments for "Scholven" and "Gelsenberg." In German.	$1.50
10 - 17 PB L 20861.	6434-gasolines from various basic materials. In German.	1.50
18 - 21 PB L 20861	Aromatization with catalyst 7019 at 200 atm. In German.	1.50
22 - 24 PB L 20861	Benzination of SO_2 extract from synthesis middle-oil sent by Dr. Michael. In German	1.50
25 - 27 PB L 20861	Benzination catalysts on Terrans-ZnS base. Catalyst tests with bituminous coal products. In German.	1.50
28 - 30 PB L 20861	Two diagrams to be used as basis for estimating 7019-aromatization of various products. In German.	1.50
31 PB L 20861	Behavior of catalyst 3510 in 50 ats dehydrogenation of pure gasolines with and without addition of Co. In German.	1.50
32 - 38 PB L 20861	Aromatization of "Auguste Viktoria" bituminous coal tar. In German.	1.50
39 - 43 PB L 20861	7019 catalysts: preparing of the carrier. In German.	1.50
44 - 47 PB L 20861	Catalyst from Dr. Winkler-Welheim and 7019. In German.	1.50
48 - 52 PB L 20861	Manufacture of aviation gasoline from Scholven hydrogenation middle oil via aromatizing prehydrogenation. In German.	1.50
53 - 55 PB L 20861	Dehydrogenation at 50 atm.: catalyst experiments starting from NiW. In German.	1.50
56 - 61 PB L 20861	Production of aviation gasoline from Scholven coal-hydrogenation middle oil via alumina-Mo prehydrogenation. In German.	1.50
62 - 63 PB L 20861	Consumption of rarer metals in producing gasoline with fixed bed catalysts, calculated at a rate of 100 000 tons gasoline per year. In German.	1.50
64 - 65 PB L 20861	Demethylation. In German.	1.50

66 - 67 PB L 20861 — Testing regenerated 6434 catalysts. In German. 1.50

68 - 78 PB L 20861 — Producing gasoline from Leuna-S stripper with the new prehydrogenation catalyst 7525. In German. 1.50

79 - 89 PB L 20861 — Hydrogenation of pressure distillation products from bituminous coal and coal tar stripper heavy oil over catalyst 6719 at 600 atm. In German. 1.50

90 - 94 PB L 20861 — Hydrogenation of the distillation residues from gasoline dehydrogenation over catalyst which can be regenerated. In German. 1.50

95 - 114 PB L 20861 — 50 Atm. dehydrogenation with regenerative catalyst. Report on results in 100 cc oven. In German. 2.00

115 - 130 PB L 20861 — Hydrogenation of bituminous coal tar-a-middle oils over 7846/6434 to gasoline -90°, -120° and 150°C. In German. 2.00

131 - 144 PB L 20861 — Hydrogenation of petroleum-crude oils, petroleum-heavy oils and petroleum-pressure distillates over fixed bed catalysts. In German. 1.50

145 - 154 PB L 20861 — Causes of difference in quality of the paraffinic and naphthenic components of aromatized gasoline from coal hydrogenation. In German. 1.50

155 - 174 PB L 20861 — Catalyst 7846 for prehydrogenating middle oil from Scholven. In German. 2.00

175 - 187 PB L 20861 — Gas compositions in benzination and aromatization. In German. 1.50

188 - 200 PB L 20861 — Hydrogenation of petroleum-pressure distillate over fixed-bed catalysts (7878) and 6434 to 87 octane gasoline. In German. 1.50

201 - 207 PB L 20861 — Processing of Russian gasoline. In German. 1.50

208 - 212 PB L 20861 — Small scale experiments for processing alcohol from Oppau to 110° gasoline. In German. 1.50
Only frame 212 is legible.

213 - 220 PB L 20861 — The effect of the temperature on the results of prehydrogenation with catalyst 7846. In German. 1.50
Only 2 frames are legible.

221 - 223 PB L 20861 — Experiments on isomerization of butane. In German. 1.50

224 - 236 PB L 20861 — On the effect of throughput, oil partial pressure and reaction time on the results of prehydrogenation with catalyst 7846. In German. 1.50

237 - 242 PB L 20861 — On the hydrogenation activity of alumina-tungsten-nickel catalysts of varying preparation. In German. 1.50

243 - 244 PB L 20861 — The effect of the nickel content in alumina-tungsten-nickel catalysts. In German. 1.50
Legibility poor.

245 - 251 PB L 20861 — Two-stage 300 atm gasphase gasolines from various raw-materials and with various prehydrogenation catalysts. In German. 1.50
Partly illegible.

252 - 257 PB L 20861 — Di-isobutylene hydrogenation over diluted catalysts and at low pressures. In German. 1.50

258 - 263 PB L 20861 — Results of the prehydrogenation of coal hydrogenation middle oil with catalysts 5058, 7846 and 7846 W 150 at pressures between 150 and 250 atm. In German. 1.50

264 - 272 PB L 20861 — Low pressure cracking (50 ats) of petroleum-a-middle oils. In German. 1.50

273 - 281 PB L 20861 — Testing new prehydrogenation catalysts. In German. 1.50

282 - 297 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part I, Scholven a-middle oils. In German. 2.00

298 - 303 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part Ia: Scholven liquid phase gasoline and middle oil. In German. 1.50

304 - 311a PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part II, Gasoline plus middle oil from Leuna lignite hydrogenation. In German. 1.50

312 - 321 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part III: Bituminous coal high temperature tar middle oils. In German. 1.50

322 - 337 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part IV: Hydrogenation middle oil from Rhenish lignite. In German. 2.00

338 - 344 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part IVa: liquid-phase gasoline and middle oil from Wesseling. In German. 1.50

345 - 353 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part V: Pölitz liquid-phase products, essentially from petroleum. In German. 1.50

354 - 365 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part VI: Products from bituminous coal low-temperature carbonization tar. In German. 1.50

366 - 374 PB L 20861 — Testing the alumina-W-Ni prehydrogenation catalyst 8376 = 7846 W 250 on various products. Part VII: a+s - gasoline + middle oil from lignite tar (Brabag, Magdeburg). In German. 1.50

375 - 379 PB L 20861 — The behavior of acid and alkaline components of coal hydrogenation middle oil in the prehydrogenation with alumina catalysts. In German. 1.50

380 - 388 PB L 20861 — Connection between the ease of benzination of oils and their nitrogen content. In German. 1.50

389 - 392 PB L 20861 — Experimental hydrogenation of 7019-B-middle oil from Scholven over 8376-6434 to 87 octane gasoline. In German. 1.50

393 - 395 PB L 20861 — Testing regenerated 6434 catalysts. In German. 1.50

396 - 399 PB L 20861 — Benzination of 5058/7846 Mo-B-middle oil from Leuna. In German. 1.50

400 - 403 PB L 20861 — A formula for expressing numerically the splitting activity of benzina-

tion catalysts or the ease of benzination of oils. In German. 1.50

404 - 407 PB L 20861 Testing prehydrogenation catalysts in 30 cc lead bath ovens. In German. 1.50

408 - 412 PB L 20861 Benzination catalysts of iron fluoride on bleaching earth. In German. 1.50

413 - 424 PB L 20861 Cracking of petroleum -a- or s-middle oils over 6434. In German. 1.50

425 - 435 PB L 20861 The effect of the degree of hydrogenation (aniline point of B-middle oil) on the results of 8376/6434 hydrogenation of S-middle oil "Scholven." In German. 1.50

436 - 439 PB L 20861 The effect of sulfur in "Terrana" iron fluoride catalysts. In German. 1.50

440 - 441 PB L 20861 Testing regenerated 6434 catalysts (cf. the last report of August 6, 1942) (No. 51 of this series). In German. 1.50

442 - 459 PB L 20861 On the effect of W, V, Ni Co and Fe as active components on alumina prehydrogenation catalysts. (Two reports). In German. 2.00

460 - 467 PB L 20861 The effect of the nitrogen content of oils on their ease of benzination. In German. 1.50

468 - 475 PB L 20861 The effect of added organic nitrogen compounds on the benzination of petroleum-gasoil over catalyst 6434. In German. 1.50

476 - 483 PB L 20861 Requirements of critical metals in the gasphase for gasoline production according to the most important methods used at present. In German. 1.50

484 - 497 PB L 20861 New benzination catalysts. In German. 1.50

498 - 512 PB L 20861 Describing small scale experiments, run on the same line as the large scale experiment in chamber 805, and a new continuous experiment on benzination of coal hydrogenation middle oil over "Terrana" catalysts at 600 atm. In German. 1.50

513 - 514 PB L 20861 Determination of phenol in middle oils. In German. 1.50

515 - 519 PB L 20861 Testing 8376 catalysts for catalyst factories Lu and Pölitz. In German. 1.50

520 - 525 PB L 20861 Prehydrogenation of liquid-phase gasoline and middle oil from Rhenish Wesseling lignite over catalysts 8376/6434. In German. 1.50

526 - 530 PB L 20861 New experiments in the field of benzination catalysts. In German. 1.50

531 - 533 PB L 20861 The effect of the nitrogen content on the ease of benzination of oils. (Cf. items 61 and 62.) In German. 1.50

534 - 541 PB L 20861 A continuous experiment on prehydrogenation of bituminous coal and lignite hydrogenation products over catalyst 8376 = 7846 W 250 without sulfurizing the product. In German. 1.50

542 PB L 20861 Comparing the sensitivity to nitrogen and to changing conditions of catalysts 8797 and 6434. In German. 1.50

543 PB L 20861 Experiments with a new prehydrogenation catalyst. (catalyst 9010 = 8376 + 0.2% Co_2O_3). In German. 1.50

544 - 551 PB L 20861 Hydrogenation of Puertollano shale oil (Spain) and of middle oil from Puertollano shale oil over fixed-bed catalysts in small ovens. In German. 1.50

552 - 555 PB L 20861 Refining liquid-phase gasolines at varying temperatures under pressure. In German. 1.50

556 - 563 PB L 20861 Conference of November 26, 1943 at Brüx on gasphase. In German. 1.50

564 - 569 PB L 20861 Hydrogenation of liquid-phase middle oil from Rumanian crude oil P 1490 over 8376/6434 or over 6434/6434. In German. 1.50

570 - 575 PB L 20861 New benzination catalysts. Tungstenfree benzination catalysts composed of mixtures of oxides and fluorides of Si, Al and Fe. In German. 1.50

576 - 584 PB L 20861 Benzination of A middle oils from Hungarian crude oils. In German. 1.50

585 - 587 PB L 20861 The effect of adding sulphur on the benzination over catalyst 6434. In German. 1.50
Legibility of 1st two frames poor.

588 - 589 PB L 20861 The problem of converting gasoline production from the end point of 150° to the end point of 180°C. (Two reports). In German. 1.50

590 - 599 PB L 20861 Tungstenfree splitting catalysts of the type HF-treated SiO_2- Al_2O_3-Fe_2O_3-hydroxide compounds. In German. 1.50

600 - 616 PB L 20861 The effect of temperature on the reactions occurring in the hydrogenation of coal hydrogenation middle oil over catalysts 5058, 7846 (Mo) and 8376 (= 7846 W 250). In German. 2.00

617 - 624 PB L 20861 The effect of pressure on the reactions occurring in hydrogenation of coal hydrogenation middle oil over catalyst 8376 in the range of 150-250 atm H_2. In German. 1.50

625 - 629 PB L 20861 The effect of temperature on the reactions occurring in hydrogenation of coal hydrogenation middle oil over catalyst 6718. In German. 1.50

630 - 638 PB L 20861 The benzination of fractions from prehydrogenated coal hydrogenation middle oil. In German. 1.50

639 - 650 PB L 20861 New experiments in the field of prehydrogenation catalysts, particularly of 8376. In German. 1.50

651 - 661 PB L 20861 The sulphur balance in the hydrogenation at the hydrogenation plants. In German. 1.50

PB L 20865. I. G. FARBENINDUSTRIE A. G. Reports and tables in the field of fuel technology. (FIAT Microfilm Reel LF 127 (TOM 204), Frames 1-712) 1938-1943. 712 f. Price: Microfilm $6.00 - Enlargement print $71.50
This FIAT microfilm reel contains 65 reports on the processing of coal. Individual reports, listed below, will be available as enlargement prints. Please include PB and frame numbers when ordering an individual item. These reports are all in German.

PB Number Frames	Title	Price
L 66967 Frames 1-6	A quick and exact method of determining the lead content in liquid fuels. n. d. In German.	$1.00

L 66966 Frame 7 — Determination of aromatics. n. d. In German. 1.00

L 66187 Frames 8-11 — Determination of the iodine-thiocyanogen number. 1938. In German. 1.00

L 66098 Frames 12-14 — Determination of phenols. n. d. In German. 1.00

L 66965 Frames 15-38 — Directions for the operation and control of "Alkacid" washing plants. n. d. In German. 2.00

L 66964 Frames 39-53 — Reports on experiments with tin-filters and Zeits low temperature hydrogenation lubricating oil residue. n. d. In German. 2.00

L 66963 Frames 54-57 — Dewaraffination experiments with low temperature hydrogenation lubricating oil residue in Leuna. 1939. In German. 1.00

L 66962 Frames 58-62 — Low temperature coal carbonisation. 1942. In German. 1.00

L 66961 Frames 63-92 — Progress in low temperature bituminous coal carbonisation and further plans for development. 1941. In German. 2.00

L 66960 Frames 93-108 — Material balances in carbonisation. n. d. In German. 2.00

L 66959 Frames 109-135 — Reactions occurring in catalytic pressure hydrogenation of coal and oil, and their control. 1937. In German. 2.00

L 66958 Frames 136-155 — On resin formation in gasolines during storage and artificial aging, and its prevention. 1942. In German. 2.00

L 66957 Frames 156-161 — Production of briquetting agents in hydrogenation plants. 1943. In German. 1.00

L 60956 Frames 162-174 — Experiments in extractive hydrogenation of coal in Chamber 804. (Preliminary report.) 1942. In German. 1.00

L 66955 Frames 175-179 — Extractive hydrogenation in the 10 liter furnace. 1942. In German. 1.00

L 66954 Frames 180-184 — Dilution oil in the pressure extraction of coal. 1941. In German. 1.00

L 66953 Frames 185-193 — Extraction experiments in rotary autoclaves for the production of primary bitumens. 1941. In German. 1.00

L 66952 Frames 194-200 — Arsine. 1939. In German. 1.00

L 66951 Frames 201-202 — Oleyl alcohol as anti-foam agent for "Alkacid." 1939. In German. 1.00

L 66950 Frames 203-213 — Regeneration of "Alkacid" solutions. Me 361. n. d. In German. 1.00

L 66949 Frames 214-219 — Experiments in production of SO_2. 1939. In German. 1.00

L 66948 Frames 220-231 — "Alkacid-Claus" plant at Scholven. 1939. In German. 1.00

L 66947 Frames 232-239 — Obtaining highly concentrated SO_2 by burning sulfur with oxygen. 1939. In German. 1.00

L 66946 Frames 240-247 — The production of briquetting agents from products of hydrogenation, particularly in view of a combination of hydrogenation and low-temperature carbonisation. 1943. In German. 1.00

L 66945 Frames 248-290 — The production of quality coke by low temperature carbonization of coal, with special utilization briquetting agents from slightly hydrogenated coal or hydrogenation residue. 1942. In German. 4.00

L 66944 Frames 291-347 — The production of briquetting agents from slightly hydrogenated coals or by treatment of hydrogenation residue, with special consideration given to the combination of hydrogenation and low-temperature carbonisation. 1942. In German. 6.00

Frames 348-371 — These frames are illegible.

L 66943 Frames 372-395 — The production of solid coke and fuel oil by low temperature carbonisation of briquets made from poorly caking coals, with the addition of slightly hydrogenated coal or hydrogenation residue. 1940. In German. 2.00

Frames 396-401 — These frames are duplicates of PB 66941, Frames 427-432 (below).

L 66940 Frames 402-426 — Earlier version, only slightly different from the item in PB 66941, above. 1940. In German. 2.00

L 66941 Frames 427-432 — Research on the behavior of briquettes during low temperature carbonization while being moved and while stationary. 1940. In German. 1.00

L 66939 Frames 433-464 — Technical experiments for obtaining low temperature carbonisation tar and coke ("Hycoke") from poorly caking coals in conjunction with hydroproducts of hydrogenation (hydrogenation residue and slightly hydrogenated coal) by means of briquetting and subsequent carbonization of the briquettes. Gasification of the distillation coke. 1940. In German. 4.00

L 66938 Frames 465-471 — Production of slightly hydrogenated coal. 1943. In German. 1.00

L 66937 Frames 472-478 — Increasing the low-temperature carbonization yield by the use of catalysts and additional steam. 1943. In German. 1.00

L 66936 Frames 479-481A — Improvement of the carbonization yield by addition of diluting oil in the separator. n. d. In German. 1.00

Frames 482-538 — These frames are illegible.

L 66935 — Estimate of cost of a hydrogena-

Frames 539-544 — tion plant. 1943. In German. 1.00

L 66934 Frame 544A — Estimate of combined costs of briquetting, distillation, gasification for large-scale experiments. 1943. In German. 1.00

L 66933 Frames 545-549 — Slightly hydrogenated coal from bituminous coal, with recirculation of the middle oils. 1943. In German. 1.00

L 66932 Frames 550-558 — Estimate of cost of slightly hydrogenated coal ("Anko"). 1942. In German. 1.00

L 66931 Frames 559-564 — Briquetting agents from hydrogenation plants. 1942. In German. 1.00

L 66930 Frames 565-570 — Transforming hydrogenation residues into briquetting agents. 1942. In German. 1.00

L 66929 Frames 571-577 — Briquetting tar (slightly hydrogenated coal). n. d. In German. 1.00

L 66928 Frames 578-590 — Profitableness of the use of hydrogenation residues, particularly from centrifugal separation, for briquetting. 1941. In German. 1.00

L 66927 Frames 591-595 — The briquette works at the Hohenzollern pit in Beuthen, Upper Silesia, and costs of its operation. 1941. In German. 1.00

L 66926 Frame 596 — Estimate of cost of treating 200,000 tons of pit coal yearly for conversion into bitumen to be used in low temperature coal carbonization. 1940. In German. 1.00

L 66925 Frames 597-601 — Discussion on the subject of binders on Nov. 2, 1943. In German. 1.00

L 66924 Frames 602-607 — The present process of production electrode coke by means of extracting hydrogenation. n. d. In German. 1.00

L 66923 Frames 608-613 — File record of a visit to Welheim on Feb. 25, 1942. In German. 1.00

L 66922 Frames 614-627 — Cost estimate of "a-Bi + Mi" + electrode coke. 1942. In German. 1.00

L 66921 Frames 628-633 — Investigations on anode material connected with the problem of backfiring in large-scale rectifier. Boiling of the rectifier and precipitation during the supplementary heating process. 1942. In German. 1.00

L 66920 Frames 634-639 — Examination of furnace residues in electrode molding. 1942. In German. 1.00

L 66919 Frames 640-658 — Tests in the hydrogenation extraction of bituminous coal in Chamber 804. 1942. In German. 2.00

L 66918 Frames 659-661 — Bitumen from the Ludwigshafen pilot plant compared with bitumen from Welheim. 1942. In German. 1.00

L 66917 Frames 662-663 — Preliminary results of experiments for the production of electrode coke. 1942. In German. 1.00

L 66916 — Production of electrode coke by thermal cracking under pressure. Frames 664-666. 1942. In German. 1.00

L 66915 Frames 667-671 — Filtration of the sludge from Chamber 804, formed during production of primary bitumens. 1942. In German. 1.00

L 66914 Frames 672-674 — Production of electrode coke by pressure carbonization. 1942. In German. 1.00

L 66913 Frames 675-678 — Fuel oil and electrode coke. 1942. In German. 1.00

L 66912 Frames 679-680 — Pressure carbonization of filtered rinsing gas tar from coal briquettes combined with hydrogenation bitumens. 1941. In German. 1.00

L 66911 Frames 681-686 — Experiments on the filtration of sludge with various solvents. 1941. In German. 1.00

L 66910 Frames 687-691 — Experiments on the filtration of sludge with various aldehydes. 1941. In German. 1.00

L 66909 Frames 692-697 — The process of extractive hydrogenation in comparison with the methods of treatment by Unde and the normal hydrogenation for heavy oil surplus. 1941. In German. 1.00

L 66908 Frames 698-699 — Improving filtration by addition of furfural. 1941. In German. 1.00

L 66906 Frames 700-701 — Further experiments in filtration of hydrogenation sludges and results achieved. 1941. In German. 1.00

L 66907 Frames 702-705 — Experiments for obtaining primary bitumens for the production of electrode coke. 1941. In German. 1.00

L 66905 Frames 706-712 — The production of ash-free electrode coke via primary bitumens. 1940. In German. 1.00

L 66968 — Documents dealing with miscellaneous subjects in coal hydrogenation. 1938-1941. Index. 1.00

PB L 86780. MERRIAM, CHARLES S. and ROGERS, C. L. Ishikari coal field, Hokkaido. (Supreme Commander for the Allied Powers. Natural Resources Sect Rept 99) Nov 1947. 50 p. Price: Microfilm-$2.00 Photostat-$5.00.

The Ishikari coal field in Hokkaido contains 27 mines accounting for about one-fourth of Japanese coal production. Total annual production of the field before World War II was more than 10,000,000 metric tons. The field is important because its coal has the highest calorific value in Japan. Coal from the southern part of the field is comparatively low in ash and sulfur and is of high coking quality. Coking coal is also found in the northern part of the field. Throughout the central part, the coal is excellent for boiler use, heating, and as a source of gas. The geology of the field is complex. The structural complications limit the workable coal reserves of the field to a low percentage at most mines. Estimated coal reserves of the Ishikari field in 1931, according to Japanese sources, totalled 5,813,833,000 metric tons, of which the recoverable quantity of proved reserves was established as 1,201,195,000 metric tons. By subtracting production from 1931-46, 1,065,195,000 metric tons of proved reserves remain. At the present rate of production the life of the field is at least 180 years.. Data used in this report were gathered during September and October 1946, when production was just beginning to recover after the summer decline. Machinery and equipment were in poor condition,

PB L 70217. RUHRCHEMIE A.G., OBERHAUSEN - HOLTEN, GERMANY. Synthetic fuels. (FIAT Microfilm Reel K 26, Frames 3980-4775) 1937-1946. 795 f.
Price: Microfilm-$6.00 - Enlargement Print-$79.50
This reel consists of 22 research reports on the production and tests of synthetic fuels prepared at the Ruhuchemie laboratories and at several universities. Individual items are listed below and will be available as enlargement prints. The entire reel may be purchased in microfilm form for $6.00. Please include PB and frame numbers when ordering individual items. In German. (Poor reproduction.)

Frames	Title	Price
3980-4014 PB L 70217	Meeting-reports of the Wirtschaftsgruppe Kraftstoffindustrie. By Widdeke. 1938. In German.	$3.50
4015-4044 PB L 70217	Experiments with the addition of methanol to combustion motor fuel. By W. Rixmann and W. Zarnack. n.d. In German.	3.00
4045-4050 PB L 70217	Production of heating oil by low-temperature carbonisation of coal. By Hagemann. 1938. In German.	1.50
4051-4059 PB L 70217	Exchange of experiments between gasoline producers and the motor car industry. 1938. In German.	1.50
4060-4080 PB L 70217	Caracity of light fuels for being stored. n. d. In German.	2.50
4081-4130 PB L 70217	Meeting-report of the committee for low-temperature carbonization of coal of the Wirtschaftsgruppe Kraftstoffindustrie (Economic Group Industry of Fuels) 1937. In German.	5.00
4131-4132 PB L 70217	Production of Diesel fuels for aviation. n. d. In German.	1.50
4133-4135 PB L 70217	Synthesis of fatty acids for the production of edible fats. By Hagemann. 1939. In German.	1.50
4136-4137 PB L 70217	Improving of lubricating oils. By Hagemann. 1939. In German.	1.50
4138 PB L 70217	Cracking of products of primary synthesis in a vacuum at high temperatures. By Hagemann. 1939. In German.	1.50
4139-4140A PB L 70217	Investigation with the two stroke motor. n. d. In German.	1.50
4141-4156 PB L 70217	Influence of fuel additions and their combustion products on the metals used in motors. By G. Schikorr and K. Alex. 1940. In German.	2.00
4157-4398 PB L 70217	Reports of activity of Ruhrchemie AG (fragments). By Martin and Hagemann. 1937-1942. In German.	4.50
4399-4453 PB L 70217	Reports of activity of the main laboratory of Ruhrchemie AG. By Tramm. 1942-1943. In German.	5.50
4454-4510 PB L 70217	Monthly reports of the research laboratory of Ruhrchemie AG. By Roelen. 1942-1944. In German.	6.00
4511-4538 PB L 70217	Monthly reports of the operating laboratory I of Ruhrchemie AG. 1942-1943. In German.	3.00
4539-4544 PB L 70217	Weekly reports of laboratory V of Ruhrchemie AG. 1945/1946. In German.	1.50
4545-4652 PB L 70217	Monthly reports 1942-1944 of operating laboratory II of Ruhrchemie AG. 1942-1944. In German.	1.50
4653-4707 PB L 70217	Monthly reports of the Motor Testing Laboratory of Ruhrchemie A.G. By Schaub. 1942-1945. In German.	5.50
4708-4754 PB L 70217	Monthly reports of the Pressure-Synthesis-Pilot Plant of Ruhrchemie A. G. By Meyer and Dahm. 1942-1944. In German.	5.00
4755-4764 PB L 70217	Monthly and weekly reports of Ruhrchemie AG. By Roettig. 1946. In German.	1.50
4765-4775 PB L 70217	Monthly reports of the Testing Laboratory of Ruhrchemie A. G. By Roettig. 1944. In German.	1.50

PB L 70217-S. RUHRCHEMIE A.G., OBERHAUSEN - HOLTEN, GERMANY. Synthetic fuels. (FIAT Microfilm Reel K 26, Frames 3980-4775, abstract cards) 1937-1946.
22 p. Price: Microfilm-$1.00 - Photostat-$2.00
Brief abstracts of the individual items on the above reel K 26, PB 70217, prepared by FIAT personnel in Germany.

PB L 70184. RUHRCHEMIE A.G., OBERHAUSEN-HOLTEN, GERMANY. Synthetic fuels. (FIAT Microfilm Reel K 27, Frames 4776-5419, and 5520-5733) 1937-1946. 858 f.
Price: Microfilm-$6.00 - Enlargement Print-$86.00
This reel contains 15 weekly, monthly and annual reports on activities in the Ruhrchemie Laboratories. Individual items are listed below and will be available as enlargement prints. The entire reel may be purchased as a microfilm for $6.00. Please include PB and frame numbers when ordering individual items. In German. (Poor reproduction)

Frames	Title	Price
4776-4791 PB L 70184	Monthly reports of the main laboratory of Ruhrchemie 1944. By Holling. In German. Incomplete. The first 11 frames on reel K 26, PB 70217.	$2.00
4792-4819 PB L 70184	Weekly reports of the main laboratory of Ruhrchemie AG 1946 and complete report on the activity from September 1945 to March 1946. By Holling. In German.	3.00
4820-4830 PB L 70184	Monthly reports of the main laboratory of Ruhrchemie 1944. By Holling. In German.	1.50
4831-4841 PB L 70184	Weekly and monthly reports of the main laboratory of Ruhrchemie AG 1946. By Gubin. In German.	1.50
4842-4858 PB L 70184	Reports on the activity of the water-laboratory of Ruhrchemie AG 1944. By Gubin. In German.	2.00
4859-4888 PB L 70184	Monthly reports of the oil testing plant of Ruhrchemie AG 1944/1945. By Clar. In German.	3.00
4889-4906 PB L 70184	Weekly and monthly reports of the operating laboratory of Ruhrchemie AG 1946. By Henke-Stark. In German.	2.00
4907-4915 PB L 70184	Monthly reports of the operating laboratory of Ruhrchemie AG 1944. By Henke-Stark. In German.	1.50
4916-4930 PB L 70184	Weekly reports of the operating laboratory of Ruhrchemie AG 1946. By Krueger. In German.	1.50
4931-4948 PB L 70184	Weekly reports of the operating laboratory of Ruhrchemie AG 1946. By Buechner. In German.	2.00
4949-5014 PB L 70184	Reports of activity of the testing laboratory of Ruhrchemie AG 1942. By Schaub. In German.	7.00

5015-5151 PB L 70184 Monthly reports of the pressure-synthesis-pilot plant of Ruhrchemie AG 1938-1942. By Heyer and Bahr. In German. 14.00

5152-5419 5520-5527 PB L 70184 Reports of activity of the main laboratory of Ruhrchemie AG 1937-1942. By Tramm. In German. 28.00

5420-5519 These frames are missing.

5528-5675 PB L 70184 Reports of activity of the research laboratory of Ruhrchemie AG 1937-1942. By Roelen. In German. 15.00

5676-5733 PB L 70184 Monthly reports of the operating laboratory I of Ruhrchemie AG 1940-1942. By Feisst. In German. 6.00

PB L 70184-S. RUHRCHEMIE A.G., OBERHAUSEN-HOLTEN, GERMANY. Synthetic fuels. (FIAT Microfilm Reel K 27, Frames 4776-5419 and 5520-5733, abstract cards) 1937-1946. 17 p. Price: Microfilm-$1.00 - Photostat-$2.00
Brief abstracts of the individual items on the above reel K 27, PB 70184, prepared by FIAT personnel in Germany.

PB L 283-6. SCHROEDER, W. C. Investigation of the German synthetic liquid fuel industry. (See PB 283). n. d. 13 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report appears as a supplement to PB 283, vol. 1, p. 1. this Bibliography, and deals primarily with synthetic fuels. A list of the major plants and laboratories investigated, their location, and products is shown in Table I. The report mentions the Winkler and Lurgi processes for satisfaction of solid fuels, the Fischer-Tropsch process for liquid fuels, the hydrogenation process, three methods for production of lubricating oil, and a like number of shale extractions.

PB L 86765. STROEYS, P. J. The thermal cracking of ethane - Oppau process. n.d. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00.
This report presents information on a process for the thermal cracking of ethane to produce ethylene as developed at Oppau and intended for large scale use at Heydebreck. Included are experimental data on the use of a copper nitrate - ethanolamine solution for the separation of olefinic gases from the cracking furnace outlet gas.

PB L 81726. ZAPS and UNGLAUBE. Possibilities of igniting petroleum derivatives such as fuel oils. (STS-7). Feb 1947. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00
The following experiments were made: (1) Attempts to ignite cotton waste saturated with petroleum ether or with gasoline-benzene mixtures by sparks by various means, (2) by immersing a flat iron or copper bar heated to various temperatures into a sheet-metal trough containing gasoline, a gasoline-benzene mixture, diesel oil, or A-F Motor oil and (3) determination of the ignition temperatures of the four substances listed in (2).

INSTRUMENTS (PROFESSIONAL, SCIENTIFIC AND CONTROLLING)

PB L 86244. AFRICANO, ALFRED. Copper ball crusher gages. Final report. (OSRD Rept 5863; NDRC 3 Rept 1776). Jan 1946. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00
This report describes the development and performance of the new copper ball type of gun and rocket crusher gage. Until 1940, the standard gun crusher gage had had only one major change from Major Rodman's original invention of eighty years before where a piston forced a knife edge into a disk of copper. The standard gage used a soft copper cylinder, which was deformed by the compression of a piston exposed to the high pressure propellent chamber gases. The compression was known to have a "speed effect" making the result about 20 per-cent smaller than the same pressure and force would cause when acting for several seconds under a "static" load calibration, instead of a few ten-thousandths sec as in the gun. The advantage of the copper sphere over the copper cylinder is easily seen to be its greater sensitivity at low pressures due to its initial point contact. Thus for mortars and small firearms, it has replaced the uncertain age-hardening lead cylinders for registering pressures up to about 15,000 lb/in. For rockets having the low pressure range, 1000 to 6000 lb/in., there simply was no other reliable method of obtaining the maximum pressure with the crusher gage. The initial developmental work by the Bell Telephone Laboratories is described. The developmental work leading to the final gage design is also described and typical results of measurements given in the tables. Engineering drawings of the final "standard" design for the "K" model and the "L" model, for 5/32-in. and 3/16-in. balls, respectively, are in Part III. This increases the immediate value of this report to any laboratory wishing to make use of the gages without having to go through the details of development all over again. Part III also includes a set of instructions for use of the gages. Calibration charts for both the 5/32-in. and 3/16-in. balls are at the end of Part V. It is emphasized that, in general, the user will have to be careful to obtain a calibration made especially for the lot of copper balls he has on hand, and preferably with the weapon being developed, and at the pressure ranges encountered. A report from Allegany Ballistics Laboratory, George Washington University.

PB L 81148. BORDEN, A. Calibration of piezoelectric gages at the David Taylor Model Basin. (David W. Taylor Model Basin Rept R-269) Nov 1944. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00
Piezoelectric gages are calibrated at the David Taylor Model Basin by subjecting them to known hydrostatic pressures and by measuring the charge developed on the surfaces of the crystals when the pressure is released. Results accurate to 1 per cent are obtained when the pressure is released in a fraction of a millisecond by bursting a thin diaphragm and the record is photographed on a cathode-ray oscillograph. The results obtained with slow responding instruments, such as a microcoulometer or electrometer, are unsatisfactory. This is caused by a change of temperature in the medium about the crystal which occurs with the release of pressure. In the few seconds which elapse before the instruments respond, the crystal develops a pyroelectric charge which is an appreciable fraction of the piezoelectric effect.

PB L 81736. BORDEN, A. Design, operation, and maintenance of a meter for recording the air content of water in the David Taylor model basin water tunnels. (David W. Taylor Model Basin Rept 549) Dec 1946. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00
This report describes the theory and operation of the air-content meter which has been procured for use with the variable-pressure, open type water tunnels at the David Taylor Model Basin. The air content of the water is derived from a measurement of the thermal conductivity of the gases evolved when the water is scrubbed in an atmosphere of hydrogen. Certain difficulties which were encountered in pumping the water out to the instrument while the tunnel was being run under a vacuum are recounted. The results of preliminary investigations of the effect of air content on cavitation tests of propellers are also discussed. Instructions for the operation and maintenance of the meter are given in the Appendix.

PB L 81907. CAMPBELL, W. S. Operating and service manual for the TMB type 1A strain indicator. (David W. Taylor Model Basin Rept R-351) Jul 1947. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00

This report discusses the range, response, and general performance of a carrier-type strain indicator developed by the David Taylor Model Basin for the measurement of static and dynamic strains, and gives instructions for installing and operating the instrument. Circuit-adjustment procedure is outlined as an aid in servicing. Schematic circuit diagrams of the unit and its power supply are included.

PB L 81415. CHRISTENSEN, JULIEN M. Psychological factors involved in the design of air navigation plotters. (AAF AMC Eng Div Memo Rept TSEAA 694-1D). Oct 1946. 26 p. Price: Microfilm-$1.50 - Photostat-$3.00
Previous studies have shown that an appreciable percentage of the errors made by navigators can be attributed to their plotting instruments. In order to study four basic comparisons it was necessary to design five experimental plotters. Comparison tests with these experimental plotters are described and results given. Illustration of the plotters and test charts are included.

*PB L 85598. COX, M. Electrical dynamometer. (NDRC Final Rept 117, Item 25). n. d. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
This report describes an apparatus of simple and robust construction for measuring torque without the use of slip-rings. It has been built so that it is especially suitable for very high speeds, while it requires only a small space. The range of measurement is exceptionally wide. By using a null method the error of this instrument amounts to less than 0.5%, and as a direct reading instrument the error is less than 1%. In the latter case it is possible to take readings from a distance. A sketch is included.

PB L 81156. DONOGHUE, J. J. Air-bubble generators. (David W. Taylor Model Basin Rept R-83) May 1943. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
Methods of generating air bubbles in water are reviewed. The effects on the bubble size of such variables as surface tension and viscosity are discussed, with reference to the work of other investigators. Two generators are described for producing uniform and reproducible screens of air bubbles. In the first design moving a stream of water past the air orifices shears off bubbles of uniform size. In the second design, the release of a high pressure over a saturated solution of air in water generates very fine bubbles.

PB L 81499. DOWNS, GEORGE W. New type of resistance thermometer for use in measurement of temperature structure of the ocean. Jul 1942. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
This memorandum describes a new type of resistance thermometer and the associated equipment necessary to make dynamic measurement of the temperatures and temperature gradients existing in the ocean. A preliminary study has been made which indicates the value of measurements of this type. The apparatus used in making these measurements did not have sufficient speed of response to complete the work. The proposed system is offered as having greater speed of response, greater linearity and greater ease of operation and interpretation.

PB L 81908. EISENBERG, P. Catamaran float arrangement for towing the outboard projector of a model MK2 portable supersonic depth recorder. Instructions for assembling and towing. (David W. Taylor Model Basin Rept R-251) Jun 1944. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
A catamaran float arrangement designed for towing the outboard projector of a portable supersonic depth recorder in searching an underwater path is described, and directions are given for its use.

PB L 81749. GERBER, WILHELM E. Thermal-efficiency gage for boilers. 1940. 52 p. Price: Microfilm-$2.25 - Photostat-$6.00
The significance of the air supply for economical boiler operation led to an analysis of excess air and measurement of the total amount of air fed to a boiler. A simple method was developed which enables the attendant to determine the effect of changes in air volume on firing by means of an indicator.

PB L 81143. GREENFIELD, M. A. and SHAPIRO, M. M. Instrumentation for the measurement of underwater explosion pressures. (David W. Taylor Model Basin Rept 523) Sep 1944. 54 p. Price: Microfilm-$2.25 - Photostat-$6.00
The David Taylor Model Basin, in its efforts to provide instruments for the measurement of underwater explosion pressures, has developed three pressure gages, two of the piezoelectric and one of the resistance type. The construction and operation of the gages are described in detail. The most important causes of distortion of a gage signal are analyzed, and the measures taken to overcome them are described. In particular the mechanical disturbance of a gage cable by an underwater explosion gives rise to a spurious signal which is large when ordinary coaxial cables are used. An investigation of this effect has resulted in the development of a coaxial cable which has many advantages over any other type that was investigated and which permits accurate measurements of momentum. Several techniques for calibrating the various gages are discussed. The best of these methods gives results which agree closely with those obtained by workers in other laboratories. The gages were subjected to explosion tests with charges of about one ounce of tetryl, in which pressure-time records were obtained. Only the tourmaline gage has been tested with larger charges, of 100 grams or more. These tests yield records which exhibit a high degree of reproducibility.

PB L 37278-T. KERRIS and WEIDEMANN. Development of a photoelectric manometer. (Translation to PB 37278) (AAF T-2 Translation 1505) May 1947. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
For abstract of original German report, see this Bibliography, v. 3, p. 562.

PB L 81406. MCCOY, H. M. Description of a temperature indicator for 300° to 1000° C. (AAF T-2 Translation 1914) Jul 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
Aircraft instrument for indicating temperature of exhaust gases has a range of 300 to 1000 degrees C. The indicator is a millivoltmeter and is connected to a thermocouple which is placed in exhaust stream. Accuracy of the instrument is only plus or minus 50 degrees C. Circuit diagram and sketches are included.

PB L 74013. MINISTERIAL DOCUMENTS BRANCH, BERLIN. Electric power, gas and water meters. (FIAT Microfilm Reel B 221, Frames 6521-7483). 1935-1944. 963 f. Price: Microfilm-$6.00 - Enlargement Print-$96.50
This FIAT microfilm reel consists of correspondence between the German Ministry of Economics and the Committees for electric power supply, gas, and water in regard to the question of official testing and calibration of electric, gas, and water meters. In German.

Instruments (contd)

PB L 81125. PLATH, C. Transmission unit for D, F, quadrantal error corrector. (AAF T-2 Translation 3140) Aug 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
Device automatically corrects the error of bearings on compass indicator. It is used as auxiliary equipment for various aircraft direction finders. Working mechanism, installation, and operating and servicing instructions are described. Diagrams are included.

PB L 79156. ROBERTSON, GEORGE M. Indicator, dual compass, radio magnetic. (AAF AMC Eng Div Memo Rept TSEP2-182-1352-B). Sep 1946. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81869. SLEDGE, OLIVER D. Instruction manual of type "B" test equipment. A edition. (Naval Res Lab Rept RA 60A 2334) Aug 1942. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
This test instrument is designed specifically for testing the BI and ABA recognition gear. A photograph of the instrument is shown in figure I, and a functional diagram of the equipment appears in figure II. Blueprints showing: receiver circuit diagram; transmitter and power circuits; timing and cathode ray circuits; type "B" test equipment, etc., are included.

PB L 81204. STEPHENSON, R. G. Automatic volume control for echo-ranging equipments; pros and cons. (Columbia Univ Div of War Res Rept D20/R312). May 1943. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
It is pointed out that it is not necessary to adopt the entire MARK I automatic Volume control unit as it now exists as a modification for the D-20 Rack. There are several choices of more or less logical value presented in this report for what they are worth.

* PB L 85686. STEVENS, H. C. M. and others. German laboratory instruments industry. (BIOS Final Rept 1562, Item 9). Jun-Jul 1945. 123 p. Price: Microfilm-$4.00 - Photostat-$13.00
Eleven manufacturing firms were visited and a detailed report given on each firm. As regards new instruments, the designs generally were as preceding models, and it appeared in several cases that attention was being paid to the production of instruments of modern type and rather simple construction. The report embodies somewhat full descriptions of certain instruments in production which would appear worth complete study. The following instruments are described in great details: Midget welding tool by Siemens; Phillips vacuum gage with circuit diagram by Leybolds; Ionization manometer with circuit diagram by Leybolds; Gaede's molvacumeter with diagram by Leybolds; Characteristics of Rôhstrat galvanometers; Step-by-step movement control for handwheels by Hartmann and Braun; Small balancing machine with dynammetric indicator by Carl Schenck; and Rationalized balancing of gyroscopes and high speed fractional horse power motors by Klaus Pectern. Other sketches, diagrams with nomenclature are included.

PB L 81717. STRUTHERS, FRANCIS W. and TRENT, HORACE M. Ultrasonic measurement of wall thickness in Diesel cylinder liners. Mar 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
The modifications that have been developed in order to adapt the Sonigage to the quick inspection of Diesel cylinder liners are described. A method of introducing ultrasonic vibrations from a conventional flat-crystal probe into a curved surface and an adaptor for determining thickness by interpreting the harmonics response have proven to be valuable in expediting this type of work. In the hands of an experienced operator the technique can be made to yield much valuable information concerning the relative homogeneities of the castings. Reprinted from the Journal of the Accoustical Society of America, v. 19, No. 2, Mar. 1947.

PB L 80862. ULTRA-PRÄZISIONSWERK GMBH ASCHAFFENBURG. Gages - Precision measuring tools - Scales. n. d. 119 p. Price: Microfilm-$3.00 - Photostat-$8.00
An illustrated catalog on screw thread, snap and limit gages, vernier calipers, scales, trueing plates, etc. In German.

PB L 81725. U. S. NAVAL TORPEDO STATION, NEWPORT, R.I. Electric depth and gyro angle setting device from German aircraft torpedo. Interim report no. 6. (Consecutive Rept 24). Jul 1945. 37 p. Price: Microfilm-$1.75 - Photostat-$4.00
This report describes the German electric remote control unit which by means of control in the plane makes it possible to set the gyro angle and the running depth of the torpedo at the time it is to be fired. A starting mechanism for starting the torpedo and for energizing the releasing gear circuit is also provided in the unit. The information here presented was taken from a German report on the remote control unit. As no test equipment was available at this station, the given data could not be checked and therefore its reliability is not known. Wiring diagram and nineteen figures are included.

PB L 81723. U. S. NAVAL TORPEDO STATION, NEWPORT, R. I. German "LUT" type gyro mechanism. Interim report No. 5. (Consecutive Rept 20) Jun 1945. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
The "LUT" type gyro mechanism with which certain German torpedoes were fitted consists essentially of a standard type gyro modified to permit a wide range of figure-run settings. The "LUT" type gyro mechanism covered by this report differs from that previously examined in that a modified figure-run pattern is produced by it. The absence of two components; the external setting mechanism and the cam lever operating mechanism prevents making a complete performance estimate for this "LUT" mechanism, but an attempt has been made to estimate the functional characteristics of the missing components. Three blueprints and four photographs are included.

PB L 81473. U. S. WAR DEPARTMENT. Altimeter, surveying, 15000-ft, 20-ft divisions, type 15, Wallace & Tierman, model FA-113. (Tech Manual 5-9418). Mar 1944. 40 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 81474. U. S. WAR DEPARTMENT. Altimeter, surveying, 60000-ft, 10ft divisions, type 6, Wallace and Tierman model FA-112. (Tech Manual 5-9420). Mar 1944. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00

PB L 37870-a. U. S. WAR DEPARTMENT. Test equipment IE-17-E. (Changes no. 1). (Tech Manual 11-311, amendment). Aug 1944. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
Basic manual, dated May 7, 1943, is abstracted in vol. 3, p. 100, this Bibliography.

PB L 81562. WÜST, G. Thermometers and glass instruments for oceanographic and limnological investigations. n. d. 39 p. Price: Microfilm-$1.75 - Photostat-$4.00
This illustrated catalog, issued by Richter & Wiese, Berlin, covers depth gages, thermometers for surface temperature measurements, instruments for chemical analysis of salt content, and for physical analysis of salt content and water density, as well as instruments for gas analysis, maritime meteorology, and plankton research. In German.

MEDICAL RESEARCH AND PRACTICE, INCLUDING CLINICAL APPLICATION OF DRUGS AND PHARMACEUTICALS

PB M 81996. FOWLER, WARD S. Lung to ear circulation time measured by oximeter deflection following inhalation of oxygen. n. d. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
The data presented indicate that satisfactory measurements can be made in normal subjects using as an endpoint the rise in arterial O_2 saturation following inhalation of 100% O_2. The author believes the use of N_2 as the inspired gas is undesirable, and that the use of a deep or maximal inspiration is unnecessary and in some cases adds technical difficulty. Methods, results and discussion are included, references and tables attached.

PB M 81971. HART, J. S. Instantaneous rates at which various fractions of the inspired air are inhaled. (NRCC No. 1 Clinical Investigation Unit Rpt. B-67). Jan 1944. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
Knowledge of the flow rates at which various fractions of the inspired air are inhaled is necessary for the design of respiratory apparatus, particularly demand oxygen regulators. An analysis of the instantaneous flow rates during rest and exercise has been done on 28 subjects. Particular attention is directed to the individual variation in flow rates during rest. Associate committee on Aviation Medical Research, National Research Council, Canada.

PB M 87306. HARVEY, E. NEWTON and others. The mechanism of wounding by high velocity missiles. I: Quantitative data. Interim report. (OSRD CMR Missile Casualties Rept 2) Dec 1944. 112 p. Price: Microfilm-$3.75 - Photostat-$12.00
This report deals with the ballistic-behavior of missiles in (1) water, (2) gelatin gel, (3) living muscle tissue, and (4) bone of the cat. List of notations, bibliography, drawings and photographs are attached. Biological Department, Princeton University.

PB M 87307. HARVEY, E. N. and others. The mechanism of wounding by high velocity missiles. II: Microsecond X-ray studies. Interim report. (OSRD CMR Missile Casualties Rept 6) Mar 1945. 56 p. Price: Microfilm-$2.25 - Photostat-$6.00
The complete similarity of the temporary cavities in water, gelatin gel, and living tissue is evident in microsecond roentgenograms. It is the purpose of this report to describe these temporary cavities as they have been photographed in the various tissues and organs of living animals, to present quantitative data relating to the cavities, and to discuss the important role they appear to play in the wounding mechanism. Roentgenograms, drawings, diagrams, and graphs are attached. Biological Department, Princeton University.

PB M 87308. GRUNDFEST, H. Penetration of steel spheres into bone. Interim report. (OSRD CMR Missile Casualties Rept 10) Jul 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
An investigation has been made of the penetration into bone of spherical missiles of 4/32", 6/32", and 8/32" diameter and of various striking velocities. The bone used is the spongy bone of the extremities of the long bones of cattle. The degree of penetration obeys the empirical relation $P = K r^2 (V_o - V_r)^2$. Other empirical relations found to be applicable for the penetration of missiles into wood do not hold for bone. It is considered that the above relation may be applied to other than spongy bone and to bones of the human. Damage to the bone produced by the three sizes of missiles used is approximately proportional to the energy of the missile. The data obtained are given in Tables I-III, and are shown graphically in Figs. 1-3. In spite of the fluctuations of the data, an attempt was made to find a simple empirical relationship between the penetration, velocity, and sphere size. The curves in Figs. 1-3 represent the best relation obtained and are discussed. Princeton University.

PB M 87309. GRUNDFEST, H. and others. Ballistics of the penetration of human skin by small spheres. Interim report. (OSRD CMR Missile Casualties Rept 11) Jul 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$6.00
This investigation was undertaken to determine the retardation of missiles by human skin as a function of the initial velocity and mass of the missile, and of the thickness of the skin through which the missile travels. Method and results are given, and the following points discussed: (1) The retardation constant, (2) the drag coefficient, (3) comparison of the ballistic properties of human skin with those of other materials, and (4) the residual velocities at which missiles strike the underlying tissues after penetrating human skin. Bibliography, table of symbols and their definitions, and graphs are attached. Princeton University.

PB M 87310. MCMILLEN, J. HOWARD and GREGG, JOHN R. The energy, mass and velocity which is required of small missiles in order to produce a casualty. Interim report. (OSRD CMR Missile Casualties Rept 12) Nov 1945. 26 p. Price: Microfilm-$1.50 - Photostat-$3.00
The investigation was carried out in the following steps: (1) An anatomical survey was made from drawings of sections of a man and the projected areas of the vulnerable region measured, (2) the amount of protective tissue covering the vulnerable area was determined from the same anatomical maps, (3) the mass-velocity relationship required by those spheres which are capable of reaching and piercing these areas was determined, and (4) finally the probability of a given missile piercing the vulnerable regions, that is, the probability of wounding, was then calculated. Bibliography, tables, and graphs are attached. Department of Biology, Princeton University.

PB M 87311. GRUNDFEST, HARRY and others. Damage to peripheral nerves by high velocity missiles without a direct hit. (OSRD CMR Missile Casualties Rept 13) Aug 1945. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
Experiments are described in which functional damage to the sciatic nerves of cats has been produced by high velocity steel spheres which passed at a distance from the nerves and which produced no break in the continuity of the nerves. Histological studies on sections of these nerves show that the loss of function is associated with a series of minor breaks within the nerve sheath. This type of structural damage can be attributed to the compression and stretching which a nerve undergoes as it is rapidly blown aside by the large temporary cavity which forms in the tissues immediately after the passage of a high velocity missile. The importance of recognizing this type of nerve injury before attempting drastic operative measures is emphasized, since the frequency of such injuries should be relatively high and since injuries of this type should have a good prognosis for recovery without surgical intervention. Materials and methods, experimental results and discussion are given. Bibliography and photographs attached. Department of Biology, Princeton University.

PB M 87312. PUCKETT, WILLIAM O. and MCELROY, WILLIAM D. Studies on the displacement of nerves and blood vessels by the temporary cavity formed in animal tissues by the passage of high velocity missiles. (OSRD CMR Missile Casualties Rept 14) Aug 1945. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00
The purpose of the present series of experiments has been to render these structures, nerves and blood vessels, radiopaque and then, by means of microsecond roentgenograms to demonstrate that these structures could be displaced by the

rapidly expanding temporary cavity, without suffering macroscopic damage. Experimental results are given. Bibliography and roentgenograms are attached. Department of Biology, Princeton University.

PB M 87313. PUCKETT, W. O. and others. Studies on wounds of the abdomen and thorax produced by high velocity missiles. Interim report. (OSRD CMR Missile Casualties Rept 19) Aug 1945. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00
Two techniques have been employed in this study: (1) High speed motion pictures (2000 frames/sec.) to study external changes associated with the passage of the missile through the body, and (2) microsecond roentgenograms, taken to demonstrate the temporary cavities and internal changes associated with the passage of the missile. Missiles used were 4/32" steel spheres whose impact velocities were approximately 3200 ft./sec. and 22-caliber long ammunition, fired from a smooth bore gun. These projectiles had an impact velocity of approximately 1100 ft./sec. Living cats under deep nembutal anaesthesia were used in all experiments. Experimental results are given followed by a discussion. Bibliography, photographs, and roentgenograms are attached. Department of Biology, Princeton University.

PB M 87314. HARVEY, E. NEWTON and BUTLER, E. G. Wound ballistics. Progress reports 1-2 and 4-11. Jan 1944-Sep 1945. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00
A series of monthly progress reports (Nos. 1-11 except No. 3 which is missing) setting forth the developments in wound ballistics which formed the basic material for the OSRD CMR Reports represented in PB M 87306 - PB M 87313, inclusive. Department of Biology, Princeton University.

PB M 81752. HORSON, LAWRENCE B. and HARVEY, THOMAS S. Studies on goats exposed directly to flame of petroleum fuels fired from flame throwers. Flame Attack Study VI. (CWS Medical Div Rept 113). Jun 1947. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00
Death is primarily from the effects of the heat in and on the skin of the animal. These effects include: (a) liberation of potassium into the blood stream, (b) vascular damage with edema, (c) massive stimulation of sensory nerve endings, and (d) loss of protection afforded by the skin against water loss (and, later, infection). The inhalation of gases produced by the flame is relatively unimportant as a cause of death. Because of the scarcity of definite anatomical lesions, aside from skin burns, no conclusions can be reached with certainty as to the cause of death. However, further investigations should be made on the mechanisms of death which occurs immediately after exposure to higher temperatures (above 750°) in the laboratory rather than in the field. Electrocardiograms and tables appear in the report and attached are appendix A-master tables, and appendix B-pathology of goats exposed directly to flame. War Department, Chemical Corp.

PB M 81850. KAREL, LEONARD. Gastric absorption. n. d. 35 p. Price: Microfilm-$1.75 - Photostat-$4.00
This literature review of procedures and materials used in the study of stomach absorption was undertaken because gastric absorption may be of some physiological significance in nutrition and therapeutics, and of special significance in toxicology and allergy. A bibliography of 114 items is included. Army Chemical Center, Maryland.

PB M 86431. NATIONAL RESEARCH COUNCIL. COMMITTEE ON SELECTION AND TRAINING OF PILOTS. The medical requirements of the Civil Aeronautics Administration and the recommended medical requirements of the Personnel Licensing Division of the Provisional International Civil Aviation Organization. Jun 1947. 73 p. Price: Microfilm-$2.75 - Photostat-$8.00
In this report are presented the medical requirements of the Civil Aeronautics Administration, Department of Commerce, U.S.A., in comparison with those recommended in the Final Report, Personnel Licensing Division, Provisional International Civil Aviation Organization, Montreal, Canada, February 24, 1946. Both the CAA requirements and the PICAO recommendations have been stated in their original forms, with explanations of technical medical terms inserted. The PICAO materials are presented in full in Part A. The CAA materials are presented in full in Part B, this presentation being on the left hand page throughout. On the right hand page, i.e., on the page opposite the CAA requirements, the sections from the PICAO requirements (which were presented in original context in Part A) are presented opposite the general section of the CAA requirements in terms of which they may be classified. Inasmuch as the organization of the CAA materials differs from that of the PICAO materials, and since further differences exist in terms of classification of pilots, and inclusiveness of the detailed requirements presented, a direct comparison of the two materials is impossible in many cases. Rather, the PICAO materials have been organized as far as possible as they pertain to (1) vision, (2) ear, nose, throat, and equilibrium; (3) general physical condition, and (4) nervous system, the categories in terms of which the CAA materials are organized. Furthermore, the PICAO Standards No. 1 have been presented in connection with the CAA requirements for transport pilots. Again, however, it should be observed that it is not implied that these references to pilot types in terms of physical standards, are necessarily directly comparable. However, both the PICAO Standards No. 1, and the CAA First Class requirements represent the most strict specifications in the PICAO and CAA materials, respectively. (Note: In the original report the requirements are printed in red with clarifying insertions printed in purple. These distinctions will be lost in one-color reproduction.)

PB L 81681. U. S. WAR DEPARTMENT. Army medical supply depot. (Tech Manual 8-245). Nov 1942. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB M 86376. ZEISS, H. Atlas of infectious diseases. 1942-1944. 92 p. (Available from the Army Medical Library, Washington, D. C., $30.50)
This is an atlas, consisting of 43 individual maps. It is fully described by an accompanying text (PB 86375). Since the maps are colored they will not reproduce well. In German.

PB M 86375. ZEISS, H. Control of infectious diseases. 1942. 159 p. (Available from the Army Medical Library, Washington, D. C., $1.50)
This is the accompanying text of an "Atlas of infectious diseases" (see PB 86376), covering the greatest part of Europe, Northern Africa, and parts of Western Asia. The purpose of the work was to provide a basis for military disease control measures in areas where the German armed forces were likely to fight during the Second World War. The individual maps inform about the geographic distribution of the pertinent endemic and epidemic diseases, the distribution and habitats of the disease transmitting animals (insects, rodents, worms etc), and about the occurrence of the individual diseases in relation to the density of population and to meteorological and soil conditions. In German. The atlas dates from 1942.

METALS AND METAL PRODUCTS

PB L 85625. ALLAN, GLENN L. Aluminum metallurgy in the Japanese empire. (Supreme Commander for the Allied Powers. Natural Resources Sect Rept 87) Aug 1947. 71 p. Price: Microfilm-$2.75 - Photostat-$8.00
Before 1938 Japan Proper was a substantial importer and consumer of aluminum. After 1938 production and con-

sumption came into balance at about 20,000 tons annually. Five years later the Japanese Empire was fourth in world production aluminum, with 150,000 tons in 1943, the maximum year. During 1941-45, aluminum produced in Japan Proper was valued at 1.6 times more than copper, the next most valued nonferrous metal. Most of the raw materials for production of alumina and aluminum had to be imported. The basis of Japan's aluminum industry, like that of the other great producers, United States, Canada, and Germany, was her ample supply of low-cost electric energy. With the exception of the United States, all had to import their entire requirements of bauxite, the raw material from which practically all aluminum is produced. Production methods varied little from those used in America and Europe, where processes and equipment designs were borrowed. Alumina manufacturing practice favored American methods and used American designed equipment almost exclusively. Reduction of alumina to metal followed European practice more closely. The Soederberg continously-formed self-baking electrode, as yet little used in the United States, was generally preferred to the solid-electrode cell. A distinct tendency toward the use of high-current cells, up to 40,000 amperes developed. As the supplies of bauxite and other imported raw materials became difficult to maintain, owing to World War II, Japanese metallurgists resorted to desperate means for processing Manchurian aluminous shales and domestic materials, including clays and alunite. These efforts were uneconomic and resulted in few new techniques of value by peacetime competitive production. Possible exceptions may be the calcium aluminate method for alumina which was operated successfully on aluminous shale by Japanese engineers in Manchuria, and some success in production of alumina from shale was attained by a direct fusion process using the electric furnace. Neither process was originated by the Japanese. They did not master the lime-soda-sinter process for alumina. At the end of World War II production of aluminum was suspended. Production of secondary aluminum from scrap was resumed early in 1946 and attained a production rate of about 10,000 tons toward the end of the year.

PB L 81703. ALLEN, GLENN L. Magnesium metallurgy in the Japanese empire. (Supreme Commander for the Allied Powers. Natural Resources Section. Rept 85) Aug 1946. 58 p. Price: Microfilm-$2.25 - Photostat-$6.00

Japan's magnesium industry was the most overrated of all her nonferrous metal industries, in both estimated production and perfection of magnesium technology. United States civil and military intelligence estimates placed maximum productive capacity of Japan 300-350 percent over actual production. The belief that Japanese metallurgists had in operation the best European techiques and equipment designs was later proved false. Metallurgical practices and specialized magnesium equipment actually in use indicated that, for the most part, the Japanese had learned from their own experience what they knew about magnesium production. First reported production of magnesium was in 1933. It was recovered from bittern, a by-product of the Home Island's salt-from-sea-water industry. Production from magnesite began in 1937, and Empire magnesium from both sources passed 1,000 tons a year in 1938, and averaged over 3,100 tons annually during 1939-1944 inclusive. Japan recognized the importance of magnesium early and has been fourth-ranking world producer and consumer of magnesium most of the years since 1938. Japan has no magesite deposits of importance, but has low-cost electric energy, coal, chlorine, and bittern, which formed the basis of her magnesium industry and which accounted for about 59 percent of her total production. Former Japanese dependencies, Korea and Manchuria, supplied most of the magnesite; Korea produced about 600 tons of magnesium a year during 1940-44 inclusive. Rather large tonnages of raw material per ton of metal were required in the manufacturing methods used by the Japanese, but the cost of the imported magnesite and salt was not prohibitive. During World War II the theoretical capacity of the Empire was rated by the Japanese at 16,200 tons annually. Actually nothing closely approximating that figure was ever produced. The largest yearly production for the Empire in 1944 was only 5,295 metric tons. Japan Proper's rated capacity was 7,200 tons annually but maximum yearly output was only 2,904 tons in 1944. Wartime requirements were apparently met by allocating her entire production to military use. Quality of the metal produced was good.

PB L 86203. ALLEN, GLENN L. Zinc metallurgy in Japan. (Supreme Commander for the Allied Powers. Natural Resources Sect Rept 96) Oct 1947. 55 p. Price: Microfilm-$2.25 - Photostat-$6.00

Zinc smelting is a relatively new industry in Japan. Since becoming a major zinc producer in the early 1930's, Japan has been eighth to tenth among ranking producers of the world. Her entire smelter production, averaging 37,000 metric tons annually since 1925, and imports of slab zinc, averaging about 35,000 metric tons annually, have been consumed in Japan. Zinc was Japan's third most valuable nonferrous metal during World War II. The industry has been based on a small but consistent domestic mine production of about 35,500 metric tons annually, sufficient to meet about 48 percent of requirements since 1925. Coal and electric energy have been adequate and reasonably priced. Electrolytic and retort zinc was produced in about equal quantities from 1943 until the end of World War II. Distillation works follow European designs and practices closely but use much auxiliary equipment, including roasting furnaces, sintering machines, and gas producers, developed in the United States. Electrolytic producers follow closely the equipment and processes developed in the United States for high-grade metal. Characteristics of Japanese electrolytic plants are small capacity, less than 35 tons daily, a tendency to favor medium to high density Tainton-process plants, high-power consumption compared to that obtained in larger plants, and a preference for porcelain cells in electrolytic tank rooms. Metal produced is generally less than 99.99 percent pure. The cost of producing electrolytic metal has always been higher than that for retort metal under comparable conditions. Electrolytic zinc has commanded a higher market price.

* PB L 86156. DENNETT, P. H. German manufacture of boot and shoe eyelets (celluloid dipped and solid celluloid). (BIOS Final Rept 1420, Item 36). Apr 1947. 13 p. Price: Microfilm-$1.25 - Photostat-$2.00

This report covers investigation of seven principal manufacturers of German shoe eyelets. Owing to conditions prevailing, none of the firms were operating the finishing processes which were the subject of this investigation; therefor, the information contained in this report was mainly obtained from records and descriptions given by managers and technicians. All the firms which were in operation were only producing strictly utilitarian eyelets, in every case made from steel strip. None of the firms are producing much more than 20% of capacity, this condition being controlled by shortage of raw materials, power and gas.

* PB L 85167. ENGLISCH, CARL. Aluminum bearing alloys and their development by the Karl Schmidt Company at Neckarsulm, Germany. (FIAT Final Rept 1121) May 1947. 158 p. Price: Mimeo-$4.00

This report is a history of the work done at Karl Schmidt G.m.b.H., Neckarsulm on aluminum base bearings. Large numbers of experiments with all kinds of additions of such metals as Bi, Cd, Pb to the aluminum base, have been conducted. Cast bearings, as well as bearing pressed from aluminum powder (with and without graphite additions as lubricant), plated bearings (on steel and on aluminum), bearings in different engines and different speeds were tried over a period of many years. Although the report shows that Karl Schmidt put a great amount of effort and money into these experiments no final and conclusive results seem to have been achieved. The sensitivity of the bearing material, difficulties with lubrication, etc., prevented their use on a general and large production scale. The report indicates possibilities for a wide range of applications if and when the above-mentioned difficulties have been overcome. It might be mentioned that aluminum alloys are used at present for the connecting rod bearings of the V8 Ford (bearing type 411) and for the crankshaft bearings of the Volkswagen (type 834). The peak production during the war amounted to 60,000 bearings per month. In German.

PB L 81731. FRANKLAND, J. M. Strength of ship plating under edge compression: A review of published and unpublished information to 1940. (Experimental Model Basin Rept 489) May 1940. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
A review is given of the experimental work on the strength of plating in compression, stiffened and unstiffened, on the strength of stiffeners, and on the strength of plating with lightening holes. The data are compared with the results obtained by other investigators in this field. An analysis is then made to draw conclusions useful to the designer. Unsolved problems are pointed out and recommendations made for further study. An appendix contains an illustrative application of this information in design.

*PB L 86081. GUETERBOWK, P. J. G. and others. German tin smelting and allied industries. (BIOS Final Rept 372, Item 21). Sep 1945. 55 p. Price: Microfilm-$2.25 - Photostat-$6.00
Five firms were visited in order to investigate the tin smelting industry in Germany and a detailed report is presented covering each firm investigated. Production figures covering eleven firms from 1936 through 1944 are given in tabulated form. Many of these firms can only be regarded as re-smelters, the three firms carrying out any real smelting operations are fully reported on in reports I, II and III. Tables, photographs, and flow sheets are included.

*PB L 81382. GUTTMANN, OTTO. The manufacture of sintered magnets in the "Magnetfabrik Dortmund" of the Deutsche Edelstahlwerke, A. G., Krefeld. (FIAT Final Rept 1130). Jun 1947. 22 p. Price: Mimeo-$0.75
The object of this report is to give detailed information on sintered magnets manufacture as carried out at Reutte until the spring of 1945 and at the Dortmund plant since the fall of 1946. Other production methods than those used in Reutte are employed; these methods are covered in detail and compared with those of Reutte in this report. Charts, graphs, drawings and a bibliography are included.

PB L 81746. LUTHER, GEORGE G. and others. An investigation of the effect of welding on the transition temperature of Navy high-tensile, low-alloy steels. Oct 1946. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00
This report is reprinted from The Welding Journal Research Supplement, October 1946. It has been found in an investigation of the effect of welding on the temperature at which a change from ductile to brittle failure occurs in high-tensile low-alloy steel, that welding frequently raises the transition temperature of a steel. Two weldability test specimens, the Charpy V-notched bar and a hitherto unreported specimen--the high-constraint nick bend, were found suitable for comparing the performance of welded and unwelded plate at various temperatures. The two specimens did not agree in some instances, however, as to which of the steels investigated were most affected by the welding process. Illustrations, tables and charts are included.

*PB L 86012. MILLER, H. and HAHN, P. Manufacture of aluminium clad steel strip by Wickede Eisen und Stahlwerke. (BIOS Final Rept 1567, Item 21). May 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
The firm of Wickeder Eisen und Stahlwerke, Wickede, Germany, specializes in the production of aluminum clad steel strip sold under the trade name of "FERAN." This report describes the manufacturing, cleaning, cladding and annealing process. The greater part of the output is used for the cladding production of electric cables sold under the trade name of "KULO-ROHR." This process is also described. Two photographs showing front and rear views of the cladding mill are included.

PB L 81742. MILLER, VIRGIL. Lead metallurgy in Japan. (Supreme Commander for the Allied Powers, Natural Resources Sec Rept 83) Jul 1947. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00
The proved and probable lead reserves of Japan are 268,000 metric tons of metallic lead in ores having an average lead content of 1.4 percent. The annual refining capacity is 48,000 metric tons of lead. This figure includes the Betts, Parks, and Harris processes. The lead is refined from reduced lead ores, lead concentrates, and lead scrap. Refined lead production in the Japanese Home Islands increased from 3,227 metric tons in 1925 to 38,048 metric tons in 1944. Production decreased to 12,568 metric tons of refined lead in 1945. The starting materials are lead ores, lead concentrates, by-products containing lead, and scrap metal. Most lead plants produce products other than lead. Equipment and processes for producing metallic lead in Japan are similar to those in other countries, but metallurgical efficiencies are much lower. In some instances, handling losses from mine ore to refined metal have exceeded seven percent. The Japanese metallurgical industry has not been able to function normally. Production was speeded in building a war machine. After hostilities ceased in 1945, lack of fuel, power, raw materials, reagents, needed repairs, and replacement parts for damaged equipment hampered efficiency.

PB L 81110. NAGAI, KENZO and KIMURA, MIZUO. Resonance frequency of tuning forks. (AAF T-2 Translation 706). Jul 1947. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
Experiments were conducted with metal bars supported at various nodes to determine the shape and pitch of metal tuning bars. Results show that a very high resonance frequency can be attained by using a metal tuning bar as a mechanical oscillator if properly supported. Metal tuning bars have advantages such as simplicity of design and manufacture, economy in materials and suitability for mass production, and greater efficiency than tuning forks. The bar was named "sound piece" in contrast with a tuning fork. This report describes experimental results on the shape and resonance acuteness of a sound piece. Tables, charts, and graphs are included.

PB L 81095. OSGOOD, W. R. Combined-stress tests on 24S-T aluminum-alloy tubes. n.d. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
Combined-stress tests were made on five 24S-T aluminum-alloy tubes, 13/4 in. ID x 0.05 in. thick. The ratios of circumferential (hoop) stress to axial stress were 0, $\frac{1}{2}$, 1, 2, and ∞. The tubes were tested to failure and sufficient measurements of circumferential strain and axial strain were taken to plot stress-strain curves almost up to rupture. The results are presented in the form of two sets of stress-strain curves for each ratio of stresses, namely, maximum shearing stress plotted against maximum shearing strain, and octahedral shearing stress plotted against octahedral shearing strain. In each plot the maximum deviation of the curves is about ± 5 percent. A method of evaluating small octahedral shearing strains from the data is given which does not assume Poisson's ratio to be $\frac{1}{2}$. From the Journal of Applied Mechanics, June 1947, pp A147-A153.

PB L 85179. PAFFET, J. A. H. and others. Welding in Japanese naval construction. (Naval Tech Mission to Japan Rept S-81(N)). Jan 1946. 50 p. Price: Mimeo-$1.25.
This report describes the use of welding in Japanese naval construction. The Japanese showed little appreciation of the real advantages to be gained by the use of welding; their lines of research, none of which were original, were aimed at increasing output rather than at improving the quality of the product. Their equipment and workmanship were poor. In fact the Japanese were years behind the U.S. and Great Britain in the development of welding. It is considered that the report is principally negative in that it shows how little of value there is to be learned from Japanese welding.

PB L 81724. PORTMAN, E. Heat-treatable Inconel wire (#056 dia.) for exhaust valve springs in the chemical torpedo (Mk. 16 types) Interim report No. 1. Naval Torpedo Station, Newport, R.I. (Consecutive Rept 43) Jan 1946. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

The report describes the use of a new heat-treatable Inconel wire for exhaust valve springs in the chemical torpedo. The relaxation of ordinary Inconel springs is excessive due to the higher exhaust temperatures of the chemical torpedo over the steam torpedo. Laboratory and range tests on this special Inconel wire indicate that when properly heat-treated, the relaxation under service conditions is low, and that the springs perform satisfactorily in torpedo service. It can be safely concluded that springs properly coiled from heat-treatable Inconel wire of suitable diameter, and given a solution and aging heat-treatment after coiling will function satisfactorily at temperatures higher than permissible with the ordinary Inconel springs.

PB L 81977. RASMUSSEN, R. T. C. and KASAHARA, TAMIO. Experimental smelting and refining of iron-chromium-nickel ore in Japan. (Supreme Commander for the Allied Powers. Natural Resources Sect Preliminary Study 12) Jun 1947. 64 p. Price: Microfilm-$2.50 - Photostat-$7.00

Research was started in Sep. 1937 on the utilization of iron-chromium-nickel ore by Nippon Seitetsu KK (Japan Iron and Steel Co.). The entire research program was based on use of Surigao ore to produce pig iron making plain carbon steel, rather than to take advantage of the chromium and nickel content of the pig iron in the manufacture of alloy steels. The problem, therefore, was to determine to what extent the chromium in the ore would affect normal blast furnace operations, whether chromium could be eliminated to any appreciable extent by special smelting methods, and which steel-making method was most suitable for eliminating chromium from pig iron. Difficulties in smelting and refining were anticipated, and their solution was considered in planning the research program. Major conclusions from the results of the tests are summarized.

PB L 81152. REPP, W. P. The brittle failure of medium steel in ship structures. (David W. Taylor Model Basin Rept R-207) Oct 1943. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00

Causes contributory to recent failures of ship structure, called "brittle," are discussed. It is pointed out that no single cause of such failures can be named, and that and increase of strength may be obtained in a variety of ways. Improvement should be made in those ways which will cause least interference with production.

PB L 81151. ROOP, W. P. A brief study of the plastic behavior of steel in way of the tensile fractures in a group of plate specimens. (David W. Taylor Model Basin Rept R-243) Jul 1944. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00

This report describes a short series of exploratory tests on a group of 24 plate specimens and simple model structures undertaken in an effort to learn more of the behavior of shipbuilding steel in the plastic range. Each of the specimens was provided with a "crack starter" in the form of a central hole with narrow transverse saw cuts on either side, and most of the specimens were fitted with what may be termed "crack stoppers" represented by rows of holes, riveted straps, or other similar devices applied in pairs abreast the holes. The various specimens are illustrated by diagrams and photographs, their behavior under load is described, and a brief analysis of the test results is given. It is concluded that relatively little is yet known of the behavior of steel in the plastic range, that comprehensive tests of this kind require larger-scale specimens, and that much more work is urgently needed.

PB L 85994. U.S. NAVAL TECHNICAL MISSION TO JAPAN. Japanese metallurgical specifications: Iron and steel, special steels, special non-ferrous alloys. (Rept X-35(N)) n.d. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

This report contains tabulations of some of the more important metallurgical specifications used in the Japanese Navy, including iron and steel, special steels and special non-ferrous metals. Principal critical alloying elements were nickel, molybdenum and tungsten. The substitute alloys developed did not approximate the prewar variety as closely as did the NE steels in the United States. The critical metal-saving alloys were developed for special case-hardened parts, special structural steel, high-speed steel, non-magnetic wire rope, aircraft armor plate, ball bearing steel, non-ferrous alloy pistons and cylinder head castings, special casting alloys, carbon steel, stainless steel, cannon-ball steel, fish-torpedo steel, and others as indicated in the tables of this report.

PB L 81732. VASTA, J. Ultimate and critical strength of Tee stiffeners. (Experimental Model Basin Rept 445) Feb 1938. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

Experimental work on the ultimate and critical compressive strength of Tee stiffeners of uniform thickness simply supported at the toe, is summarized in Fig. 4 and Fig. 5 of this report. Figure 4 specifies the minimum required flange width to develop the maximum compressive strength of the stiffener, while Fig. 5 gives the critical strength in terms of the ultimate strength. The application and extension of these results to non-uniform Tee sections is discussed and illustrated.

PHYSICS

General

PB L 80742. BELIAEV, N. M. and SINITSKII, A. K. Stresses and strains in thick-walled cylinders in the elastic-plastic state with allowance for strain-hardening. (David W. Taylor Model Basin Translation RMB-30). 1938. 40 p. Price: Microfilm-$1.00 - Photostat-$3.00

Solutions are given for the following cases: (1) Strain-hardening sets in immediately after the elastic state, and the plastic range is absent; and (2) strain-hardening sets in after a completely plastic state has been reached. The solutions were obtained under the assumption of incompressibility and using the yield conditions formulated according to the energy theory as well as according to the theory of maximum shearing stresses. This report is from "Izvestia Ak. Nauk SSSR," 1938.

PB L 86493. CALIFORNIA. UNIVERSITY. DIVISION OF WAR RESEARCH. Masking experiments. Report no. II. (Rept UCDWR U258) Sep 1944. 51 p. Price: Microfilm-$2.25 - Photostat-$6.00

A series of experiments on listening to various underwater sounds, both sonic and heterodyned supersonic, masked by typical background noise is reported. The signals tested include submarines, surface ships and torpedoes, while the masking noises include deep-sea noise, shrimp noise, and self-noise. The following conclusions can be drawn: 1. An acoustic signal generally becomes primaudible as a sound having a quite definite frequency. This frequency depends on the character of both the signal and background noise. 2. For 50% primaudibility, the signal/noise ratio in a critical band at the primaudible frequency is approximately unity. In most cases of underwater sound, a 50 cps band is sufficiently close to such a critical band for practical measurement of this ratio. 3. Recognition levels may be predicted from objective spectral measurements on the par-

ticular signal and noise. These predictions may be used to determine (a) maximum listening ranges, and (b) the optimum frequencies for listening. 4. Acoustic camouflage may be attained by making ship noise spectra similar to ambient noise spectra.

PB L 86241. CARHART, R. R. Bottom reverberation at 24 kc - E. W. Scripps data. (NDRC 6.1 Rept 2544; Calif Univ Div War Res Internal Rept A7). May 1944. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00
A limited amount of bottom reverberation data indicates that: 1) Other things being equal, bottom reverberation over rock is about 10 db higher than over non-rock bottoms; 2) The coefficient of backward scattering of the bottom varies roughly as the square of the grazing angle of the incident sound; 3) For a projector of the Navy QC type, provided there is a decrease of at least 5° F in the temperature (25 ft/sec. in the sound velocity) between the projector and the bottom, the reverberation rises to a peak. The range to the peak is about five times the depth and its level depends on the range and the type of bottom. A theoretical study indicates that for the temperature condition in (3): 4) Beyond the peak the reverberation decay with range depends only on the transmission anomaly along the bottom; 5) Over a given type of bottom the maximum echo range, at which bottom reverberation obscures the target, depends on three consistants; the peak level, the target strength, and the recognition differential; and on one variable: the difference in the transmission anomaly at the target depth and at the bottom; 6) If the target is on the bottom or if the transmission anomaly is independent of depth, the maximum echo range depends only on the three constants and is independent of transmission conditions.

PB L 81341. COLUMBIA UNIVERSITY. DIVISION OF WAR RESEARCH. Preliminary installation and operation manual for MTB modification of thyratron training control system. (Submarine Signal Co.). (Rept D40/R161). Aug 1943. 75 p. Price: Microfilm-$2.75 - Photostat-$8.00
This kit is supplied for the purpose of obtaining in model QC echo ranging and echo ranging listening equipment a feature which has been designated as maintenance of true bearing or MTB. The kit is applicable only to equipment manufactured by the Submarine Signal Co., Boston, Mass., and utilising thyratron training control. The unit and its function as well as installation instructions are described in detail. Photographs, parts lists and drawings are included.

PB L 81365. COLUMBIA UNIVERSITY. DIVISION OF WAR RESEARCH. Specification for baffle adapter model NL 111. (Rept D24/R276). Apr 1943. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
This specification and associated drawings cover the manufacturing information for an adapter for securing a baffle (per specification D38/D24/R203) to a 10 inch diameter flange.

PB L 86235. DUVALL, GEORGE E. Echoes from swells. (NDRC 6.1 Rept 1917; Calif Univ Div of War Res Internal Rept A43). Oct 1944. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
Chemical recorder traces and cathode ray oscillograms are presented which show 24 kc echoes from swells in the ocean. The mean distance separating the echoes is 65 yards. They progress at a rate corresponding to 16.5 knots. Relative echo strength is independent of range between 200 and 750 yards.

PB L 81363. GONGWER, C. A. Depth of towed fish and the general curve of a towing cable in water or air. (Columbia Univ Div of War Res Rept G2/R238, NA 107). n. d. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
Experimentally determined curves of towing cables have been plotted against dimensionless depths and trail distances. From this, a single curve has been derived which has wide applicability. Graph included.

PB L 85540. HOFF, H. B. and others. Ambient noise survey: Miami area and the East coast of the United States. Completion report. (Columbia Univ Div of War Res Rept D46A/R1215) May 1945. 52 p. Price: Microfilm-$2.25 - Photostat-$6.00
This report describes the measurement technique and the results of an ambient noise survey conducted during the summer of 1943 in the waters adjacent to Florida, the Bahama Islands, and the East Coast of the United States as far north as Cape Charles, Va. The survey included both acoustical and oceanographic measurements. The acoustical measurements of primary interest were those of snapping shrimp and other marine-life sources of noise. The areas surveyed were selected because of the similarity of their oceanographic conditions to those of other areas of strategical and tactical importance. The ambient noise measurements taken during this survey are considered to be of importance in problems associated with mine warfare, harbor defense, and the protection of our own submarines in hostile waters.

PB L 80741. ILLIUSHIN, A. A. Approximate theory of elastic-plastic deformations of shells with axial symmetry. (David W. Taylor Model Basin Translation RAB-28). 1944. 20 p. Price: Microfilm-$1.00 - Photostat-$2.00
The stressed and deformed state of a thin shell with axial symmetry under the action of internal pressure and axial forces is considered. The equations derived hold for shells of linear form. This is a report from "Prikladnaia Matematika i Mekhanika" 8, 1944.

PB L 81245. KROLL, W. D. Tables of stiffness and carry-over factor for flat rectangular plates under compression. (Natl Advisory Committee for Aeronautics Rept L-398, AR Rept 3K27) Nov 1943. 45 p. Price: Microfilm-$2.00 - Photostat-$5.00
Tables of stiffness and carry-over factor are presented for infinitely long flat plates subjected to a uniformly distributed longitudinal compressive load. The tables are intended for use in solving problems in the stability of structures composed of plates under compression.

PB L 86105. LAMLA. Regarding the jet path by Schlieren photographs of simple, plane, impact waves. (German Aeronautical Res Experiments and Repts 1169; ZWB Rept 742-57). n. d. 45 p. Price: Microfilm-$2.00 - Photostat-$5.00
Compression impacts are of great importance in those aerodynamic investigations where supersonic speeds occur. The Schlieren photographs of these impacts show that they frequently possess a very complicated structure. This shows at the same time that the appearance of the Schlieren photograph very much depend on the adjustment of the Schlieren diaphragm. The question then arises just how this affects the photographs. This report considers the simple problem of a single discontinuity in density of a gas with a surface of absolute uniformity, but where the Schlieren diaphragms may have any position. It was shown that the distribution of light intensity on the Schlieren photograph in fact did depend to a very large extent on the position of the diaphragms. A few simple cases are discussed quantitatively. The diffraction of light has not been considered in this investigation. Translated from the German.

PB L 37069-R. LANDWEBER, L. and PROTTER, M. H. The shape and tension of a light, flexible cable in a

uniform current. (Revision to PB 37069) (David W. Taylor Model Basin Rept 533, rev.) Oct 1944. 34 p. Price: Microfilm-$1.75 - Photostat-$4.00
A general analysis is made of the shape of a cable in a uniform stream when the weight of the cable itself can be neglected. This approximation is equivalent to assuming that the cable lies in a plane, but not necessarily the vertical plane. The analysis includes the shape of a loop and that of a cable towing a heavy body as special cases. A general solution in dimensionless form is obtained in terms of functions of the slopes of the cable at the end points. Tables of the functions are given. These tables are applicable to the numerical solution of any cable problem in which the weight of a cable can be neglected. To facilitate the solution of special problems of frequent occurrence, charts were prepared from the tables. The application of the tables and charts to the solution of problems is illustrated by numerical examples. In particular the case of a towed paravane with an inhaul line is discussed. Figures, tables, and curves are included.

PB L 81096. LIPSCOMB, WILLIAM N. and others. An investigation of a method for the analysis of smokes according to particle size. Jan 1947. 8 p. Available from American Institute of Physics, 57 East 55 St., New York 22, N. Y., $1.00
An electrical precipitation method for the analysis of smokes according to particle size has been investigated. A thin stream of smoke particles moving under laminar conditions in a wind tunnel of rectangular cross section is electrically charged in a small region. The charged particles are then precipitated by the uniform field existing between the charged upper plate and the grounded lower plate of the wind tunnel as a long track along the lower plate. The size-frequency distributions of the particles precipitated at various points on the lower plate were determined from measurements on enlargements of electron-microscope photographs of samples of the smoke precipitated at various points. The agreement between theory and experiment is fair, but the range of sizes of the particles precipitated at a given point is rather large. Reprinted from Journal of Applied Physics, v. 18, No. 1, January 1947.

PB L 81362. LOYE, D. P. and others. Key West submarine and water noise measurements. (Columbia Univ Div of War Res Rept 01/R300). Apr 1943. 28 p. Price: Microfilm-$1.50 - Photostat-$3.00
Measurements of submarine and ambient background water noises were made near Key West, Florida, in water having an average depth of 100 fathoms. The equipment for obtaining the noise data was installed on the U. S. S. CORAL and is described in detail. Characteristics of the submarine U. S. S. R-14, which was used in the tests are given in tabulated form. The general procedure, description of the tests and results are given. Charts, diagrams and graphs are included.

PB L 81362-S. LOYE, D. P. and others. Key West Submarine and water noise measurements; Supplement. (Columbia Univ Div of War Res Rept 01/R361). Jun 1943. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00
This supplement was prepared to present photographs of the equipment installed and to present the data of ambient noise related to state of sea as adjusted to conform with Beaufort Wind and Weather Scale and International Sea and Swell Scales employed in oceanographic work. The photographs included in this supplement are descriptive of the equipment aboard the U. S. S. CORAL employed in the measurements.

PB L 85663. MACLAREN, D. D. The photo-grid process for measuring strain caused by underwater explosions. n. d. 32 p. Price: Microfilm-$1.75 - Photostat-$4.00
The Underwater Explosion Research Group was asked to investigate and develop a means for photographically applying strain grids to steel plates to be subjected to the shock and possible rupture caused by underwater explosions. The applicability of the Eastman Kodak Transfax Process as the most promising method available was investigated. This paper discusses standard techniques for the complete process through a series of discussions of actual test results. Included are preparation of the metal surface, making of a suitable grid negative, application of the sensitizer, attainment of intimate negative contact with the sensitized coating, exposure and development, and measurement to calculate the permanent strain. Conclusions are drawn as to the cause of failure of the grids to remain completely intact following rupture of the plate, and the extent to which the grids may be employed reliably in work of this nature including the degree of accuracy to be expected.

PB L 86873. MILLER, GEORGE A. The masking of speech. (Harvard Univ Psycho-Acoustic Lab Rept PNR-23). Mar 1947. 25 p. Price: Microfilm-$1.00 - Photostat-$2.00
A wide variety of sounds have been investigated to determine the extent to which they interfere with vocal communication. The masking of speech has been determined by articulation testing methods, and estimates of annoyance have been obtained by the method of paired comparisons.

PB L 86238. RAITT, R. W. and SHEEHY, M. J. Layer effect. (NDRC 6.1 Rept 2528; Calif Univ Div of War Res Internal Rept A35). Sep 1944. 68 p. Price: Microfilm-$2.50 - Photostat-$7.00
Observations of the layer effect for the period July 2, 1943, to March 2, 1944, are presented. They were made in an area extending from Point Conception to Point San Pablo off the coast of Lower California and include a wide variety of thermal structures. The data were obtained with both horizontal and vertical transmission runs; and they were studied with particular emphasis being laid on the difference of transmission above and below the thermocline.

PB L 86240. SHEEHY, M. J. Transmission of 24 kc and 60 kc sound in very shallow water, June 1944. (NDRC 6.1 Rept 2525; Calif Univ Div of War Res Internal Rept A31). Aug 1944. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
During three days of June 1944, the Echo-Ranging Section made fourteen sound-field runs at 24 kc and eight at 60 kc in water 28 ft deep over a sand bottom. These runs were made under conditions of NAN thermal structures. On one day six runs were made using 24 kc signals and on the other two days four runs were made at 60 kc; then four were made at 24 kc. Each set of four runs occupied from one to two hours. The directivity pattern of the projector used at 60 kc was very similar to the pattern of the projector used for the 24 kc signal. The analysis of these data indicates that there is not a large difference in the attenuation coefficient or in R_{40} for 24 kc and 60 kc sound signals of 10 ms duration or for 60 kc signals of 10 ms and 50 ms duration. For 24 kc signals of 50 ms duration, the attenuation coefficient is about one-half as large as for the 10 ms signals. However, the fact that there were only four runs using 50 ms 24 kc signals, and that this dependence of attenuation on signal length has not been observed before, does not lend strength to the "signal-length-effect" noted on these data. When the data are grouped without regard to signal length the mean attenuation coefficient for 24 kc is 15.5 ± 0.7db/1000 yd and for 60 kc it is 20.8 ± 0.8 db/1000 yd. The mean R_{40} for 24 kc is 1430 ± 40 yd and for 60 kc it is 1340 ± 50 yd.

PB L 86240-S. SHEEHY, M. J. Transmission of 24 kc and 60 kc sound in very shallow water, October 1944. (NDRC 6.1 Rept 2532; Calif Univ Div of War Res Internal Rept A31a). Oct 1944. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

Eighteen more sound field runs made in water five fathoms deep over a sand bottom under conditions of MAN thermal structure give values of R_{40} and the attenuation in db/1000 yards for 24 kc and 60 kc sound which closely agree with values previously reported. The forty sound field runs which have now been made in this very shallow water indicate that for MAN thermal structure the attenuation for 24 kc sound is approximately 16 ± 4 db/1000 yards and for 60 kc it is about 20.5 ± 2.5 db/1000 yards. This difference is significantly smaller than the 15 -20 db/1000 yard difference usually noted between the attenuations at 24 kc and 60 kc in deep water. Approximate values of R_{40} for 24 kc and 60 kc are 1500 ± 200 yards and 1300 ± 100 yards respectively. Three runs made with CHARLIE thermal structure at 24 kc have a mean attenuation of 10.0 db/1000 yards and a mean R_{40} of 1580 yards. The so-called "signal-length-effect" noted before was found to be non-existent as had been expected.

PB L 80737. SHEVCHENKO, K. N. Application of the theory of plasticity to the rolling of metals. (David W. Taylor Model Basin Translation RMB-24). 1941. 20 p. Price: Microfilm-$1.00 - Photostat-$2.00
The purpose of this article is to determine the stresses along the line of contact between the rolls and the material being rolled. It is assumed that the rolls are rigid bodies and that the material is so wide that spread can be neglected, so that the problem is a two-dimensional one. This is a report from "Prikladnaia Matematika i Mekhanika" 5, 1942.

PB L 80738. SHEVCHENKO, K. N. On the distribution of stresses in a rolled bar. (David W. Taylor Model Basin Translation RMB-25). 1942. 19 p. Price: Microfilm-$1.00 - Photostat-$2.00
A study was made of stress distribution with and without the presence of friction in an application of the theory of plasticity to the rolling of metals. The rolled bar was assumed to be very thin so that the material became plastic throughout its entire thickness. Data tables and diagrams are included. This is a report from "Prikladnaia Matematika i Mekhanika" 5, 1942.

PB L 80740. SHEVCHENKO, K. N. The plastic state of stress and the flow of metals in cold rolling and drawing. (David W. Taylor Model Basin Translation RMB-27). 1946. 43 p. Price: Microfilm-$1.00 - Photostat-$3.00
The distribution of stresses and the flow velocities of the metal are considered from the point of view of the theory of plasticity. It is assumed that the rolled material is incompressible and perfectly plastic, and in a state of two-dimensional steady flow. Elastic deformation of the rolls is neglected. This is a report from "Izvestia Akademii Nauk SSSR, Otdelenie Tekhnicheskikh Nauk," 1946, No. 3. A bibliography is included.

PB L 80739. SHEVCHENKO, K. N. The pulling force during rolling. (David W. Taylor Model Basin Translation RMB-26). 1943. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00
In this paper devoted to the application of the theory of plasticity to the rolling of metals, the force necessary to pull the material through the rolls is determined. It is assumed that the plastic state prevails in the vicinity of the surfaces of contact between rolls and rolled material. This is a report from "Prikladnaia Matematika I Mekhanika" 7, 1943.

PB L 85548. SNOW, W. B. and others. Transmission measurements in the vicinity of San Diego, California, Completion report. (Columbia University Division of War Res Rept D12F/R822) Sep 1944. 63 p. Price: Microfilm-$2.50 - Photostat-$7.00
This report presents the acoustical data taken by CUDWR during a cooperative measurement program conducted with UCDWR and MITDIC in the vicinity of San Diego. In addition to obtaining fundamental transmission data these tests had as an objective the comparison of the measurement equipments of CUDWR and UCDWR. Background level comparisons were also made. Substantial agreement was obtained between the measurements of the participating groups. Evidences of the Lloyd Mirror effect were found at low frequencies. It was also found that despite the great depths (500 to 4000 feet) reflections from the bottom contributed significantly to the received sound intensity for all frequencies measured (600 cps, 2 kc, 8 kc and 20 kc).

PB L 81496. THORNDIKE, A. M. Experiments on cavitation in the range 10 kc to 50 kc. Aug 1942. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00
These experiments were made as a part of a project to investigate the properties of X-cut Rochelle salt, which has been carried out at Point Loma. When the acoustic pressure in a liquid carrying 10 kc to 50 kc sound waves exceeds a certain value - about one to five atmospheres, depending on the liquid - cavitation begins. There are a number of symptoms: (1) The linear dependence of acoustic pressure at any point in the liquid upon pressure at the driving transducer face breaks down. The pressure in the liquid may even drop while the transducer is driven with increasing vigor. (2) Somewhat later noise of wide frequency distribution, including very high frequencies, is produced. (3) Bubbles may be formed in the liquid. (4) The liquid may become hot. The liquids tested can be ordered in increasing difficulty of cavitation as follows: kerosene, benzene, acetone, butyl phthallate, castor oil. Hydrostatic pressure and dissolved gases in the liquid do not appear to have any very marked effect upon the difficulty of cavitation. Instead, it seems to be a property of the liquid itself, possibly correlated with the existence of polar groups in the molecule. Performed by University of California, Division of National Defense Research, at the U. S. Navy Radio and Sound Laboratory, San Diego, California.

Nuclear

PB L 81587. ANDERSON, B. and others. Proton cyclotron R. F. group. Progress report. (Manhattan Engineer District Rept MP 67). Jun 1947. 23 p. Price: Microfilm-$1.50 Photostat-$3.00
This report summarizes the design and test work performed on the R. F. system for the proton cyclotron. The report is divided into a general discussion and a more detailed survey of certain design aspects.

PB L 86271. BACHER, R. F. and others. The slow neutron cross section of water as a function of energy. (Manhattan Engineer District CP Rept 1146 (A-1632)). Nov 1942. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00
The slow neutron cross section of water has been measured in the region between 15 ev. and 0.007 ev. with a velocity spectrometer. It is found to increase with decreasing energy quite slowly in the region above a volt but with increasing rapidity below a volt to a peak value of $52 \times 10\text{-}24$ cm^2. This is the cross section per H nucleus uncorrected for oxygen. A Cornell University project.

PB L 85986. CARMICHAEL, H. and TUNNICLIFFE, P. R. Measurement of alpha-active dust in the atmosphere. (Natl Res Council of Canada. Atomic Energy Proj. CRTec Rept 326). Aug 1947. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00
Apparatus of two kinds for rapidly extracting the dust from large volumes of atmospheric air so that the alpha particle acitivity of the dust can readily be measured in a methane

propertional counter is described. The performance of the apparatus has been studied using the natural alpha acitivity in the atmosphere due mainly to radon and thoron and their disintegration products. Suction, provided by a commercial vacuum cleaner, is at the rate of 2.0 cu.m./min. in the electrostatic precipitation apparatus, but only 0.8 cu.m./min. in the filter apparatus. Extraction of dust at these rates of flow is 40% for the precipitator and 100% for the filter. Counting efficiency is 49% for the precipitator but only 11% for the filter due to penetration of the dust into the paper. The overall counting yield of the precipitator, for a given time of extraction of dust, is nearly four times that of the filter. It is necessary to have both types of apparatus in order that experimental determinations of the counting yield of either can be made from time to time. At least six hours must usually elapse after collection of a dust sample before uranium or plutonium of about the present health toleration concentration can be measured, because the natural alpha particle activity of atmospheric dust must first be allowed time to decay.

PB L 31886-R. COHN, W. H. Pile-produced radioisotopes of half-life > 12 hours. May 1946. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 31651-R. GRAVES, A. and WALKER, R. A method for measuring half lives. n. d. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86216. PRESENT, R. D. On the division of nuclear charge in fission. (Manhattan Engineer District MonP Rept 235). Jan 1947. 25 p. Price: Microfilm-$1.50 - Photostat-$3.00
What is the most probable charge number of a fission fragment of given mass number? Two hypotheses previously suggested are (1) that the charges divide in the same ratio as the masses, (2) that the most probable charges correspond to minimum energy of two droplets in contact. These hypotheses predict results at variance with each other and with experiment. In this report the actual division of charge is calculated for the final configuration of spheres in contact on the basis of a general nuclear model in which the charge distribution in the nucleus is non-uniform. The tendency of the protons to spread outward results in the smaller fragment of an asymmetric fission having a greater proton-neutron ratio than the larger fragment. In the most probable division (mass ratio 2:3) the most probable partners (of odd mass number) should both have chain lengths equal to 3.6. In the case of a 1:2 mass ratio, the probable chain lengths of the light and heavy partners should be 2.5 and 4.1, respectively. Data on the independent fraction yields of particular chain members are found to lie near a smooth (error) curve when plotted with the aid of the theoretical results. Published in the Physical Review, July 1, 1947.

PB L 81588. SEWELL, DUANE. 184" Cyclotron vertical D. C. electrostatic deflector. (Manhattan Eng District 184" Rept 1). Jun 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00
It was found from previous experiments that the beam was rapidly spreading vertically at approximately the 81" radius. It was thought that if a vertical deflector was placed below the median plane at this 81" radius, the beam could then expand into the deflecting channel. Once in the deflecting channel it could then be deflected rapidly into a region in which a magnetic shield (or deflector) could be used to bring the beam out of the cyclotron.

PB L 86364. U. S. ARGONNE NATIONAL LABORATORY. Five photographs of the chain reacting pile and attached instruments. Dec 1946. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 86368. U. S. ARGONNE NATIONAL LABORATORY. Photograph of trace of start-up of December 2 pile. Dec 1946. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00
The start-up of the first self-sustaining chain reaction on December 2, 1942 is shown. The neutron intensity in the pile as recorded by a galvanometer is given.

PB L 86269. U. S. MANHATTAN ENGINEER DISTRICT. Photographs released for publication in conjunction with 14 June 1946 Manhattan District Press Release, Beneficial Isotopes available from atom bomb project," by Robinson, McKee, and Aebersold. (Variety of 14 prints with appropriate caption on reverse side). Jun 1946. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 86320. WARNKIT, I. A. (comp.) Abstracts of declassified documents. Vol. 1, no. 1. Jul 1947. 31 p. Price: Microfilm-$1.75 - Photostat-$4.00
Abstracts of MDDC (Manhattan Engineer District Declassification Code) Reports 1 to 50 are included. Prepared in the Library Section, Technical Information Branch, U. S. Atomic Energy Commission, Oak Ridge, Tennessee.

PB L 86320-S. WARNKIT, I. A. (comp.) Abstracts of declassified documents. Vol. 1, no. 2. (Supplement to PB 86320). Aug 1947. 47 p. Price: Microfilm-$2.00 - Photostat-$5.00
Abstracts of MDDC Reports 51 to 150 are given.

PB L 86320-S2. WARNKIT, I. A. (comp.) Abstracts of declassified documents. Vol. 1, no. 3. (Supplement to PB 86320). Sep 1947. 83 p. Price: Microfilm-$3.00 - Photostat-$9.00
Abstracts of MDDC Reports 151 to 280 are given.

RUBBER AND RUBBER PRODUCTS

PB L 85767. I. G. FARBENINDUSTRIE A. G. Igetex, synthetic latex supplement. May 1943. 17 p. Price: Mimeo-50¢
This document is a translation of a German report prepared at I. G. Farbenindustrie A. G., Frankfurt on the Main, May 1943. The report deals with the following subjects: (1) Behavior of Igetex vulcanisates in cold; (2) dispersion agent consumption of several fillers and other solid latex addends; (3) emulsification of liquid auxiliary products for Igetex mixes; (4) thickening of Igetex mixes; and (5) heat sensitization of Igetex S, SS, and N with Igevin MO ca. 50% in water. Several tables are included.

PB L 86144. MOULTON, A. E. Principles relating to design and behaviour of rubber to shock absorption. Interrogation of Dr. Roelig. (BIOS Final Rept 1139, Item 22, Interrogation Rept 544). Jul 1946. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00
Dr. Roelig was in charge of the engineering physics department of the rubber services laboratory of the I. G. Farbenindustrie at Leverkusen, Germany. The subject of the inquiry was a review of principles relating to the design and behavior of rubber springs for shock absorption and rubber suspension, where big deflections at moderate frequencies are experienced. Information obtained is presented in this report which includes a table, photograph, charts and graphs.

AERONAUTICS

Aircraft

PB L 81720. BREVOORT, MAURICE J. and other. Effect of airplane design efficiency and engine economy on range. (Natl Advisory Committee for Aeronautics Rept L-671) Dec 1942. 56 p. Price: Microfilm-$2.25 - Photostat-$6.00

The parameters affecting performance of an airplane are divided into two groups, (1) primary parameters (altitude, power, gross weight, and wing area) and (2) secondary or "efficiency" parameters (engine economy, aerodynamic efficiency, and structural efficiency). This report examines the effect of magnified variations of the efficiency parameters to determine their influence upon performance. The analysis shows that the efficiency parameters when compared to the primary parameters are extremely ineffective in adjusting the airplane performance to its tactical mission. The values of the efficiency parameters are constantly being improved by development and research, and therefore the absolute performance values are gradually increasing with time. It is shown, however, that improvement in these parameters is no substitute for the proper choice of the primary parameters. The appendix shows that changes in the values of the efficiency parameters in the calculation of the usual performance selection charts have very little effect upon the broad trends in performance as affected by wing and power loading. Many graphs are included.

PB L 81767. BREVOORT, MAURICE J. and others. Generalized selection charts for bombers with four 2000-horsepower engines. (Natl Advisory Committee for Aeronautics Rept L-669) May 1942. 43 p. Price: Microfilm-$2.00 - Photostat-$5.00

A study has been made of the characteristics and performance of current Air Forces airplanes where the material used was that available from flight and wind-tunnel tests and manufacturers' specifications. The information obtained from this study has been used to select families of bombers and to compute their performance. Performance is represented in a series of charts with coordinates of power loading and wing loading. This type of chart should greatly simplify the selection of the best airplane for a given purpose. Detailed discussions of the assumptions, of the formulas used in constructing the charts, of the parameters affecting airplane performance, and of the limitations of the charts are given in the appendixes.

PB L 81560. DEUTSCHES FORSCHUNGSINSTITUT FÜR SEGELFLUG E. V. DARMSTADT, GERMANY. Bending and torsion tests of the landing gear struts for the DFS 39. Feb 1937. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

This report presents the results of tests to determine the course of forces and pressure distribution on the landing gear struts for this aircraft. Drawings and photographs are included. In German.

PB L 81246. GRAVE, CASWELL II. Engineering and developmental test of exterior lighting requirements. Final report. (Air Proving Ground, Eglin Field Fla. Project 3-06-5). May 1947. 44 p. Price: Microfilm-$2.00 - Photostat-$5.00

This report describes tests conducted to determine the operational suitability of the various systems of experimental exterior lights installed on the B-29 and P-47 type airplanes; to determine the best installation of exterior position lights for aircraft of the B-29 type or larger; and to evaluate the types of exterior lights developed by the U. S. Navy to aid in formation assembly and identification of aircraft at night. Four sketches and fourteen photographs are included.

PB L 40805-S. KERR, W. M. The Gotha 242 glider. Interim report No. 2; maintenance handbook. (Supplement to PB 40805). (AAF T-2 Interim Rept 1118B). Jan 1947. 88 p. Price: Microfilm-$2.00 - Photostat-$6.00

This report gives a detailed description on the construction of the German glider, the "GOTHA-242." Section III contains handling and general maintenance instructions and section IV describes the major component parts and their installation. A number of photographs, illustrations and sketches are included.

PB L 81251. LAITONE, EDMUND V. Investigation of the longitudinal stability at high speeds of a 1/5-scale model of a tailless pursuit airplane. (Natl Advisory Committee for Aeronautics Rept A-77) Mar 1943. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00

Tests of a tailless pursuit airplane model at the Ames Aeronautical Laboratory have shown that in conditions corresponding to level flight at a Mach number less than 0.7 and at an altitude under 35,000 feet, no serious compressibility effects occurred and that no sudden adverse diving moments were encountered up to a Mach number of 0.74, the maximum speed of the tests. However, there were indications that the elevons might lose their effectiveness for longitudinal control during a pull-out from a steep dive. Diagrams and photographs are included.

PB L 37684-T. MAIER and RENZ. Shimmying tests on dual wheels I: Model tests. (Translation to PB 37684) (AAF T-2 Translation 1503) May 1947. 27 p. Price: Microfilm-$1.50 - Photostat-$3.00

For abstract of original German report, see this Bibliography, v. 3, p. 884.

PB L 81302. MATTHEWS, EDWARD F. Elimination of rumble from the cooling ducts of a single-engine pursuit airplane. Memorandum report. (Natl Advisory Committee for Aeronautics Rept A-70) Aug 1943. 36 p. Price: Microfilm-$1.75 - Photostat-$4.00

A full-size single-engine pursuit airplane, with wing tips cut off, was tested in the 16-foot wind tunnel of the Ames Aeronautical Laboratory at Moffett Field, Calif. The purpose was to find means for eliminating an extreme rumble which occurred at high speeds when the radiator air-duct-exit openings were small. The most effective remedy found was placing the entrance to the duct well out of the boundary layer of the wing so that the velocity distribution would be favorable toward removal of separation and buffeting in the duct. Increasing the depth of the gutter and reducing the inlet area may also have contributed to correction of the defect. Diagrams and photographs are included.

PB L 81408. MESSERSCHMITT. Pressurized cabin for fighters. (Druckkammer ME-262). (AAF T-2 Translation 2635). May 1947. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00

This document consists of a collection of reports, discussing construction of pressurized cabins for Me-262, Me-163 and Me-109 fighter planes. Special consideration is given to fresh air supply at various altitudes. Schematic lay-out of equipment, pressure cabin Me-262 is included.

PB L 81556. NEEL, CARR B., JR. An investigation of a thermal ice-prevention system for a C-46 cargo airplane. I - Analysis of the thermal design for wings, empennage, and windshield. (Natl Advisory Committee for Aeronautics Rept A-52; AR Rept 5A03) Feb 1945. 82 p. Price: Microfilm-$3.00 - Photostat-$9.00

This report, the first of a series on an investigation to develop a thermal ice-prevention system for the C-46 cargo airplane and to provide fundamental information concerning the performance and operation of the system, presents an analysis of the design of the thermal anti-icing equipment for the wings, the empennage, and the windshield. The purpose of the analysis was to establish the thermal requirements for the C-46 ice-prevention equipment on the basis of a certain temperature rise for all points on the heated surfaces of the wings and the empennage, and of a specified heat flow through the outer panel of the windshield. The rate of heat transfer from the wing and empennage surfaces was calculated by utilizing the airfoil pressure distributions for these surfaces measured in flight. The design analysis showed that the thermal requirements for the anti-icing systems of the wings, the empennage, and the windshield were within the limits of practicability, although complete protection of the windshield might not be realized in the specific application when utilizing a secondary heat exchanger. Photographs, diagrams, and curves are included.

PB L 81761. PURSER, PAUL E. and TURNER, THOMAS R. Wind-tunnel investigation of perforated split flaps for use as dive brakes on a rectangular NACA 23012 airfoil. (Natl Advisory Committee for Aeronautics Rept L-445) Jul 1941. 46 p. Price: Microfilm-$2.00 - Photostat-$5.00

Aerodynamic characteristics of a rectangular NACA 23012 airfoil with single and double perforated split flaps have been determined in the NACA 7- by 10-foot wind tunnel. A large range of flap spans and deflections and a large range of spanwise and chordwise locations of the flaps were investigated. Dynamic pressure surveys were made behind the wing at the approximate location of the tail, in order to determine the extent and location of the wake for each flap arrangement. Tests were also made with a full-span plain flap to determine the effect of the various split-flap arrangements on aileron control. The results indicated that single or double perforated split flaps may be used to obtain satisfactory dive contol without undue buffeting effects, and that while lateral control may be obtained with a plain aileron behind single split flaps, the aileron is effectively blanketed and rendered useless behind double split flaps. Additional tests are recommended to develop a satisfactory lateral-control device for use with the perforated double split flaps. Curves and diagrams are included.

PB L 81240. RODERT, LEWIS A. and others. Preliminary report on flight tests of an airplane having exhaust-heated wings. (Natl Advisory Committee for Aeronautics Rept A-53) Apr 1941. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00

Flights have been made with an airplane in icing conditions in order to test the effect of exhaust heat applied to the wings as a means of preventing ice formations. Other ice-prevention equipment, including an exhaust gas-heated pitot-static head, hot-air-heated windshield, and an inflatable de-icer of recent design, were also tested. Icing conditions were encountered in a range of air temperatures from -10° to +32° F., which in certain instances resulted in a high rate of ice formation. The use of exhaust heat on the airplane wing resulted in successful ice prevention during all tests, and it is concluded that this method represents a practical means of ice prevention. The use of exhaust heating on the pitot-static head prevented ice under all conditions and appears to be a satisfactory solution to the pitot-static head icing problem when applied jointly with exhaust wing heating. The air-heated windshield also gave complete protection against ice or snow on the outside of the windshield and frost on the inside, and is believed to represent a practical and satisfactory solution to the windshield-icing problem. Ice was removed from the horizontal stabilizer by the inflatable de-icer under certain icing conditions, although under other icing conditions the ice was only partially removed. Photographs are included.

PB L 81762. SHORTAL, JOSEPH A. and DRAPER, JOHN W. Free-flight-tunnel investigation of the effect of the fuselage length and the aspect ratio and size of the vertical tail on lateral stability and control. (Natl Advisory Committee for Aeronautics Rept L-487, AR Rept 3D17) Apr 1943. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00

Tests have been made in the NACA free-flight tunnel to determine the effect of the fuselage length and the aspect ratio and size of the vertical tail on lateral stability and control. Fuselages of two different lengths and various vertical tail surfaces were used on a powered model in the investigation. Both flight and force tests were made. The tests indicated that a deficiency of tail area could not be overcome by an increase in fuselage length because the unstable moment of the fuselage as well as the tail effectiveness increased directly with the tail length. With a positive degree of directional stability, however, and increase in tail length provided increased stability. An increase in the aspect ratio of the vertical tail from 1.00 to 2.28 increased the tail effectiveness by 67 percent. Power had a stabilizing effect on directional stability for single vertical tails; whereas a destabilizing effect was observed for twin tails. Dorsal fins improved the directional stability at large angles of yaw.

Photographs and diagrams are included.

PB L 81241. SKOCO, RICHARD B. A comparison of two flight-test procedures for the determination of aileron control capabilities of an airplane. (Natl Advisory Committee for Aeronautics Rept A-37, AR Rept 5E22) Jul 1945. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

A comparison, based on actual flight tests of several airplanes, has been made between two flight-test procedures for the determination of the aileron control capabilities of an airplane. The procedures consist of performing rudder-fixed aileron rolls from straight unbanked flight and from steady turning flight. For the airplanes considered in this report, no significant difference was found to exist in the index of aileron power pb/2V as determined from data taken with either of the testing methods. This agreement was confirmed as being correct in a comparison of sideslip angle occurring at the time of maximum rate of roll. Extension of the close agreement shown in the report to cover all other present-day airplanes is believed to be reasonable. Results are plotted on graphs.

PB L 81243. SPAHR, RICHARD J. and CHRISTOPHERSEN, R. DON. Measurements in flight of the lateral-control characteristics of an airplane equipped with full-span Zap flaps and simple circular-arc-type ailerons. (Natl Advisory Committee for Aeronautics Rept A-32) Sep 1944. 47 p. Price: Microfilm-$2.00 - Photostat-$5.00

The lateral-control characteristics of an airplane equipped with full-span Zap flaps and modified to accommodate simple circular-arc-type ailerons of two different designs were measured in flight at the Ames Aeronautical Laboratory. Structural and space limitations restricted the circular-arc aileron designs to a type which resulted in large control forces. Thus, though the effectiveness of the two circular-arc-type aileron systems tested was of the same order as that of the original Zap-type surfaces, the high control forces restricted the rate of roll with the circular-arc designs. A decrease in the distance from the aileron center of curvature to the hinge line resulted in some reduction in control forces. The lateral lag characteristics of the airplane and the lateral control near the stall were considered satisfactory. In general, the rolling velocity and control force were very low for small control deflections. 23 figures are included.

PB L 81698. SPREITER, JOHN R. and NISSEN, JAMES M. Flight tests of a pursuit airplane fitted with an experimental bellows-type bob weight. (Natl Advisory Committee for Aeronautics Rept A-6) Oct 1944. 58 p. Price: Microfilm-$2.25 - Photostat-$6.00
Flight tests were conducted to determine the longitudinal stability characteristics of a pursuit airplane when flown with and without an experimental bellows-type bob weight. The bellows-type bob weight was designed to utilize a column of gasoline in the auxiliary fuselage fuel tank as a variable bob weight in such a manner that the stick-free longitudinal stability of the airplane remained essentially constant despite center-of-gravity movements due to variations of the amount of fuel in the auxiliary tank. With the experimental bob weight installed, the stick-free static stability remained approximately constant irrespective of the shift in center of gravity resulting from a change in fuel quantity in the auxiliary fuselage fuel tank. The bob weight shifted both the stick-free neutral point and the stick-free neutral maneuvering point rearward, while the stick-fixed static longitudinal stability remained unchanged. Although the bob weight functioned satisfactorily, its performance could have been enhanced by the reduction of the friction in the mechanism. Diagrams are included.

PB L 81252. THEODORSEN, THEODORE. Preliminary vibration and flutter studies on P-47 tail. (Natl Advisory Committee for Aeronautics Rept L-654) Aug 1943. 38 p. Price: Microfilm-$1.75 - Photostat-$4.00
This paper contains a brief report illustrated by photographs and vibration records on the failure of the P-47 rudder in the high-speed tunnel at the LMAL at a true speed of 468 miles per hour and a density corresponding to 9000 feet altitude. The fin-rudder unit was tested as being at least representative of the tail design of the P-47 airplane. It is noted that the rudder was subjected to a speed in excess of 400 miles per hour for less than an hour of total testing time.

PB L 87338. U. S. ARMY AIR FORCES. Stability and control characteristics of airplanes. (With Amendment No. 1, Mar 29, 1946) (Specification R-1815-A, Superseding C-1815) Apr 1945. 16 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340. U. S. ARMY AIR FORCES. Stress analysis criteria. (With Amendment No. 1, May 3, 1946) (Specification C-1803-E, Superseding C-1803-D) Apr 1946. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A. U. S. ARMY AIR FORCES. Definitions and symbols. (With Amendment No. 1, Apr 2, 1946) (Specification R-1803-1B, Superseding R-1803-1A) Oct 1945. 19 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340-A2. U. S. ARMY AIR FORCES. Basic flight criteria. (With Amendment No. 1, Apr 2, 1946) (Specification R-1803-2B, Superseding R-1803-2A) Oct 1945. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340-A3. U. S. ARMY AIR FORCES. Wings and wing bracing. (With Amendment No. 3, Apr 2, 1946) (Specification R-1803-3A, Superseding C-1803-3) Mar 1945. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A4. U. S. ARMY AIR FORCES. Ground loads. (With Amendment No. 2, Oct 22, 1945) (Specification R-1803-4A, Superseding C-1803-4) Mar 1945. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340-A5. U. S. ARMY AIR FORCES. Fuselage, hull, nacelles, and tail booms. (With Amendment No. 1, Apr 2, 1946) (Specification R-1803-5B, Superseding R-1803-5A) Oct 1945. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340-A6. U. S. ARMY AIR FORCES. Control surfaces including fixed surfaces and auxiliary devices. (Specification R-1803-6B, Superseding R-1803-6A) Apr 1946. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 87340-A7. U. S. ARMY AIR FORCES. Control systems. (Specification R-1803-7B, Superseding R-1803-7A) Oct 1945. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A8. U. S. ARMY AIR FORCES. Armament. (Specification R-1803-8A, Superseding C-1803-8) Mar 1945. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A9. U. S. ARMY AIR FORCES. Structural tests. (Specification R-1803-9A, Superseding R-1803-9) Oct 1945. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A10. U. S. ARMY AIR FORCES. Stress analysis form and content. (With Amendment No. 1 to Specification R-1803-10) (Specification R-1803-10) Oct 1945. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 87340-A11. U. S. ARMY AIR FORCES. Structural integrity flight demonstration requirements for airplanes. (Specification R-1803-11) Aug 1947. 10 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81534. U. S. BUREAU OF AERONAUTICS. Fluid, hydraulic, aircraft, non-inflammable. (NAVAER Specification 51F22). Aug 1945. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 81303. WONG, PARK Y. The effect of the skis on the power-off stability characteristics of a twin-engine cargo airplane. (Natl Advisory Committee for Aeronautics Rept A-74; Memo Rept A5F18) Jun 1945. 30 p. Price: Microfilm-$1.50 - Photostat-$3.00
The results of the power-off wind-tunnel tests of a 1/11-scale model of a twin-engine cargo airplane equipped with wheel skis are presented. Longitudinal-, directional-, and lateral-stability characteristics were investigated for two flap positions and three ski positions. The effect on the drag coefficient of fairing the main skis in the retracted position was also investigated. The test results indicated that the longitudinal-, directional-, and lateral-stability characteristics in pitch and yaw were practically unchanged by the addition of the wheel skis. At a lift coefficient of 0.2 (high-speed condition), the measured drag increment due to the main skis in the retracted position was 0.0017. This value was reduced to 0.0005 when fairings were added between the main skis and the nacelles. The measured drag increment of the tail ski was 0.0005. Photographs and diagrams are included.

Training and Training Devices

PB L 81435. CHRISTENSEN, J. M. Some typical sky and earth brightnesses at altitudes 10,000 to 40,000 feet and

their relationship to the eye-adaptation problems of the radar operator. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-11). Dec 1946. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00
This study was concerned with the measurement of the extremes of illumination within the visual range that are likely to be encountered at altitudes approaching those at which it is anticipated aircraft of the future will operate. On the basis of accepted principles of eye adaptation time a number of conclusions were drawn from the results of these measurements. The observed brightnesses will make it possible to determine accurately, by use of these actual brightness extremes, the dark adaptation and perception times required in carrying out simulated radar-bombing and radar-navigational procedures.

PB L 81550. FITTS, PAUL M. Studies of visual discriminatory time: The time required to recognize simple patterns at equal distances from the eye, and patterns at alternately far and near distances. (AAF AMC Eng Div Memo Rept TSEAA 694-1H). Jul 1947. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00
The purpose was to determine the time required for successive fixation and recognition of test objects located at equal distances from the eyes and the time required for changing from far to near fixation. Apparatus and procedure, and experimental results are given together with tables and graphs.

PB L 81427. GAGGE, A. P. Accuracy of pilots in applying pressures on rudder pedals. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-3B). Sep 1946. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00
The basic data derived from this experiment are summarized in Table I. The relative consistency of performance in applying pressures to stick, wheel, and rudder pedal controls as a function of a number of standard pressures are given graphically in Fig. I.

PB L 81433. GRETHER, WALTER F. Study of several design factors influencing pilot efficiency in the operation of controls. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-9). Nov 1946. 23 p. Price: Microfilm-$1.50 - Price: Microfilm-$3.00
From the findings of this investigation the following conclusions are drawn regarding the efficiency of human control movements in performing pursuit type tasks: (a) other things being equal, movements involving the hand and arm are superior to movements of the foot and leg, (b) movements of the hands and arms can be made more effectively in the fore and aft than in the lateral direction, (c) within the range of 105 to 135 degrees the amount of arm or leg flexion has no significant effect on the efficiency of control, (d) within the range of 105 to 135 degrees the amount of arm or leg flexion causes considerable variation in comfort, and (e) under conditions similar to those used in this investigation the human operator may be allowed to choose the most comfortable distance from the controls without danger of an inefficient position being chosen.

PB L 81425. JENKINS, WILLIAM O. Accuracy of pilots and non-pilots in applying pressures on a control stick. (AAF AMC Aero Medical Library Memo Rept TSEAA 694-3). Aug 1946. 20 p. Price: Microfilm-$1.25 - Photostat-$2.00
The details of procedure and treatment of results presented here are the result of studies on semi-rigid stick-type controls. Sketches, tables, and graphs are included.

PB L 81426. JENKINS, WILLIAM O. Accuracy of pilots in applying pressures on a wheel-type control. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-3A). Sep 1946. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00
The present investigation was to collect information on a wheel-type control in order to compare these data with those from a previous study, see PB 81425, which yielded information concerning pressures ranging from 1-40 pounds on a stick-type control. Details of procedure and treatment of results are given, a table and graph are attached.

PB L 81429. JENKINS, WILLIAM O. Follow-up investigation of shapes for use in coding aircraft control knobs. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-4A). Aug 1946. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
Eight knobs which had been found to yield the fewest errors in the previous study, see PB 81428, were employed (Shapes 1-8, Fig. 1) along with three new shapes (Shapes 9,10, and 11, Fig. 1) employed in the "ideal cockpit" developed by the U.S. Navy Dept. Thirty AAF pilots were blindfolded and required to judge whether the knobs, presented in pairs, were the same or different. One test was made with the bare hand and another with an A-11-A flying glove. The details of procedure and treatment of results are contained in appendix I.

PB L 81430. JENKINS, WILLIAM O. Further investigation of shapes for use in coding aircraft control knobs. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-4B). Sep 1946. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00
This study was undertaken as a basis for selecting a set of control knobs of different shapes which could be recognized immediately through the sense of touch for use on radar, radio, bombing and cockpit equipment. A series of 22 knob shapes including shapes now in use and experimental ones was constructed. A set of 8 knobs was selected by means of an examination of the error pattern among the 22 shapes. There were no errors or hesitations made by any individual in distinguishing between these 8 knobs which are shown in Fig. I. The details of administration and treatment of results are presented in Appendix I.

PB L 81428. JENKINS, WILLIAM O. Investigation of shapes for use in coding aircraft control knobs. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-4). Aug 1946. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
A series of 25 knob shapes including shapes now in use and some experimental shapes were constructed. A group of 40 blindfolded pilots compared each knob shape with every other shape. Tests were made with the bare hand and while wearing an A-11-A, medium weight flying glove. The details of the admininstration and treatment of results are presented in appendix I.

PB L 81436. JONES, RICHARD E. An investigation of errors made by pilots in judging the attitude of an aircraft without the aid of vision. (AAF AMC Aero Medical Lab TSEAA 694-13). May 1947. 25 p. Price: Microfilm-$1.50-Photostat-$3.00
This is a detailed report of non-visual orientation ability of pilots. Apparatus, procedure and results are given along with diagrams, tables and graphs, followed by a discussion of the results.

PB L 81549. LUND, DOUGLAS W. Effect of positional variation on man's tolerance to G. (AAF AMC Eng Div Memo Rept TSEAA-695-72B). Jun 1947. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00
The conclusions derived are: (a) that tolerance of young male human subjects to acceleration is modified by changes in body attitude (positional factor), as well as by their orientation relative to the directional axis of g, and (b) that tolerance to acceleration is modified by pre-test conditions, such as the presence or absence of gravity (orthostatic factor) acting through the longitudinal axis of the body. A polar graph or method of visual description is presented which shows data taken from the available literature describing man's tolerance to accelerative force in various body attitudes and body orientations.

PB L 81437. MILTON, JOHN L. Pilot reaction time: Time required to comprehend and react to contact and instrument recovery problems. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-13a). May 1947. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00
An experiment was carried out in order to determine the time required by pilots to comprehend the attitude of the aircraft in which they are flying and to initiate the control movements appropriate for returning it to level flight. Recoveries were made under both contact and instrument conditions. The results of this fundamental research provide a scientific basis for designing instrument displays that can be interpreted in the shortest possible time, and furnish an estimate of the limits of human capacity in the time dimension.

PB L 81431. WARRICK, MELVIN J. Direction of movement in the use of control knobs to position visual indicators. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-9C). Apr 1947. 18 p. Price: Microfilm-$1.25 - Photostat-$2.00
This study was conducted to determine human preferences concerning the arrangements of, and the motion relationships between indicators and controls. Two separate experiments were undertaken. The first was conducted to determine the preferred control response to deviations of simulated linear indicators in five common control indicator arrangements. The second was to determine the effect on speed and accuracy of reversing the motion relationship in two control indicator arrangements. Details of these experiments and their results are given together with diagrams and tables.

PB L 81434. WARRICK, MELVIN J. Effect of moderate positive acceleration (G) on ability to read aircraft-type instrument dials. (AAF AMC Aero Medical Lab Memo Rept TSEAA 694-10). Nov 1946. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00
It was found that the ability to read aircraft instrument dials accurately is impaired by a positive G force less than that required to produce black out. Apparatus and procedures are given.

Aerodynamics

PB L 85475. AUSTRALIA. COUNCIL FOR SCIENTIFIC AND INDUSTRIAL RESEARCH. DIVISION OF AERONAUTICS. Note on the aerial flight of a torpedo bomb. By G. K. Batchelor. (Aerodynamics Note 16). Sep 1942. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00
A pair of wings and a tailplane were developed for a bomb so that when released at a height of about 70 feet above the water it will strike the water at some positive angle of incidence. It is assumed from previous full scale tests that the bomb then bounces off the water due to the hydrodynamic lift created by the wings. Graphs and tables present the data. --Abstract prepared by CSIR Div. of Aeronautics.

PB L 81260. BARNES, ROBERT H. High-speed aerodynamic characteristics of a four-engine transport airplane as determined from tests of a 0.075-scale model. (Natl Advisory Committee for Aeronautics Rept A-67) Jan 1944. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00
The tests reported herein were made in order to determine the differences in high-speed aerodynamic characteristics between models of a four-engine transport airplane and a similar bomber airplane. The main conclusion to be drawn from the results is that the critical Mach number of the transport model is about 0.05 less than that of the bomber model. Photographs and diagrams are included.

PB L 86513. BENSON, JAMES M. and LAND, NORMAN S. An investigation of hydrofoils in the NACA tank. I. Effect of dihedral and depth of submersion. (Natl Advisory Committee for Aeronautical Rept L-758) Sep 1942. 34p. Price: Microfilm-$1.75 - Photostat-$4.00
Efforts to employ hydrofoils on seaplanes and surface boats have frequently been handicapped by the lack of information on the characteristics of the hydrofoils when near the surface of the water or when breaking the surface. In the present tests a series of hydrofoils, each supported by two struts, was towed at various depths ranging from partial submersions to a depth of 5 chord lengths. Results are presented showing the lift and draf of hydrofoils having a chord of 5 inches, a span of 30 inches, and for angles of dihedral of 0°, 10°, 20°, and 30°. The tests included speeds up to 95 feet per second and lift forces up to about 2500 pounds. The hydrofoils tested included two sections, the NACA 16-309 airfoil section and a section derived from the 16-309 by sharpening the leading edge. At depths greater than 4 or 5 chords the presence of the free water surface appeared not to affect the lift and drag. As the hydrofoil approached the surface, the lift and drag decreased and the speed at which cavitation first appeared on the hydrofoil was increased. In the range of very shallow immersions (less then, say, 1/2 chord) abrupt changes in lift and drag occurred when the flow of water over the upper surface separated from the hydrofoil. For applications requiring that the hydrofoil emerge from the water, the larger angles of dihedral (20° and 30°) appeared desirable because they produced less abrupt changes in lift and drag. Two major effects of speed were noted: first, a limitation of the total hydrofoil loading possible (about 2200 lb/sq ft for the depths tested) under conditions of complete upper-surface cavitation; and second, a loss of lift at high speeds and low angles of attack, probably due to lower-surface cavitation.

PB L 86512. BENSON, JAMES M. and KING, DOUGLAS A. Preliminary tests to determine the dynamic stability characteristics of various hydrofoil systems for seaplanes and surface boats. (Natl Advisory Committee for Aeronautics Rept L-756; RB 3K02) Nov 1943. 14 p. Price: Microfilm-$1.25 - Photostat-$2.00.
Preliminary tests were made with dynamically similar models to survey the stability characteristics of several arrangements of hydrofoils that have been proposed for use on seaplanes and high-speed surface boats of the PT class. The results, although obtained under conditions in which cavitation did not occur, indicated that one of the most important effects involved is the erratic change in lift and drag that occurs as a hydrofoil approaches the free surface of the water. This effect is much more severe for a flat horizontal hydrofoil than for one having dihedral. The effect is also much more severe for monoplane hydrofoils than for multiplane hydrofoils. A ladder-like arrangement of several hydrofoils, inclined at an angle of about 20° from the horizontal and arranged in a tripodal system on a self-propelled model, was found to be relatively free from the severe types of instability exhibited by the monoplane systems. An arrangement of two ladder-like systems in tandem (similar to an arrangement used by Guidoni) on a streamline spindle, which represented the hull of a flying boat was found to be stable throughout a wide range of speeds. No dynamic instability was observed when this model was lifted out of the water to simulate a take-off.

PB L 86163. CLOUSING, LAWRENCE A. and TURNER, WILLIAM N. Flight measurements of horizontal tail loads on a typical propeller-driven pursuit airplane during stalled pullouts at high speed. (Natl Advisory Committee for Aeronautics Rept A-81) Apr 1944. 76 p. Price: Microfilm-$2.75 - Photostat-$8.00
Flight measurements were made of the pressures on the horizontal tail surfaces of a typical propeller-driven pursuit airplane during stalled pull-outs at high Mach number. The results indicated that the load distribution during the pull-outs was considerably different from that prescribed by air-load requirements at the time the airplane was designed, and that large tail-load increments were caused by buffeting air flow over the tail as the wing started to stall. Data are included which were taken in a pull-out made without exceeding the design maneuvering limits of the airplane, but in which, due to compressibility and buffeting effects not considered in design criteria, a relatively severe failure of the horizontal-tail structure occurred. Graphs and diagrams are included.

PB L 85772. DIETZE and HARLING. Taxing behavior of model aircraft with nose or tail wheel. (AAF T-2 Translation 921). May 1947. 45 p. Price: Microfilm-$2.00 - Photostat-$5.00

Tests were performed with and without cross wind. With undamped swivel wheel, tail wheel landing gear was fundamentally unstable and nose wheel landing gear fundamentally stable. Effects of swivel wheel damping, of banked strip and of cross wind were ascertained. Controllability of landing gear by braking one of main wheels was established. A new steering possibility for nose wheel undercarriage by lateral tilting of strut is indicated. This is a translation of ZWB FB 1587.

PB L 81126. HOERNER, SIGHARD. Influence of compressibility on interference drag. (AAF T-2 Translation 1518; NACA TM 1042). Jul 1947. 11 p. Price: Microfilm-$1.25 - Photostat-$2.00

Test of interference drag of a cross-type tail, carried out in Heinkel-Werke high-speed wind tunnel, is evaluated in accordance with principles developed in a previous report NACA TM 1010, "The influence of compressibility on drag." It was found that interference drag increases with the third power of Prandtl-factor in a manner similar to other pressure drags which are dependent on friction. Bibliography, a sketch, and diagrams are included.

PB L 86522. HOLTZCLAW, RALPH W. and WIESSMAN, YALE. Wind-tunnel investigation of the effects of slot shape and flap location on the characteristics of a low-drag airfoil equipped with a 0.25-chord slotted flap. (Natl Advisory Committee for Aeronautics Rept A-80; Memo Rept A4L28). Dec 1944. 54 p. Price: Microfilm-$2.25 - Photostat-$6.00

An investigation was made to determine the effects of slot shape and flap location on the characteristics of an NACA 66,2-216 (a = 0.6) airfoil equipped with a 0.25-chord slotted flap to provide a basis for the study of drooped ailerons. Two slots were investigated and practical flap paths were selected for each. One slot had a rounded entry; the other had an entry designed to reduce the gap with the flap retracted to a practical minimum. Slot shape was found to have a negligible effect on the maximum lift coefficient if the flap was properly located. With the flap deflected, the rounded-entry slot had lower drag coefficients for intermediate lift coefficients than the minimum-gap slot. For either slot, the increment of section pitching-moment coefficient caused by flap deflection was approximately proportional to the increment of section lift coefficient. With the flap retracted the minimum-gap slot had a lower minimum profile-drag coefficient, low-drag characteristics over a larger range of lift coefficients, and slightly higher section pitching-moment coefficients than the rounded-entry slot. The flap locations for maximum lift and minimum drag with respect to the airfoil (flap deflected) were further aft and higher with the minimum-gap slot than with the rounded-entry slot.

PB L 86161. KAPLAN, CARL. On a new method for calculating the potential flow past a body of revolution. (Natl Advisory Committee for Aeronautics Rept L-558). Jul 1942. 47 p. Price: Microfilm-$2.00 - Photostat-$5.00

A new method is presented for obtaining the velocity potential of the flow about a solid of revolution moving uniformly in the direction of its axis of symmetry in a fluid otherwise at rest. This method is based essentially on the fact that the form of the differential equation for the velocity potential is invariant with regard to conformal transformations in a meridian plane. By means of the conformal transformation of the meridian profile into a circle a system of orthogonal curvilinear coordinates is obtained, the main feature of which is that one of the coordinate lines is the meridian profile itself. The use of this type of coordinate system yields a simple expression of the boundary condition at the surface of the solid and leads to a rational process of iteration for the solution of the differential equation for the velocity potential. It is shown that the velocity potential for an arbitrary body of revolution may be expressed in terms of universal functions which, although not normal, are obtainable by means of simple quadratures. The general results are applied to a body of revolution obtained by revolving a symmetrical Joukowski profile about its axis of symmetry. A numerical example further serves to illustrate the theory.

PB L 86516. KING, DOUGLAS A. Preliminary tank tests of an outboard float having the form of a streamline body of revolution fitted with a hydrofoil. (Natl Advisory Committee for Aeronautics Rept L 724; ACR L4D06) Apr 1944. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00

Preliminary tests were made in NACA tank no. 1 to investigate the hydrodynamic qualities of a streamline body of revolution of a fineness ratio of 5.14, both alone and with a lifting hydrofoil. The hydrofoil, supported below the body by means of struts that gave the effect of end plates at the tips of the hydrofoil, had a chord about 48 percent of the maximum diameter of the body, an aspect ratio of 1.92, and a dihedral angle of 30°. In general, at constant drafts, the lift of the streamline body without the hydrofoil decreased with increasing speed. When the trim of the body was 5° and the body was not wholly submerged, for any two values of draft, the speed at which the lift became negative was greater for the greater draft than for the lesser. When the trim of the body was increased to 10° and the body was completely submerged, the lift did not vary greatly with speed. The resistance of the body in this condition was of the same order of magnitude as the lift. At high trims the hydrodynamic lift-resistance ratios of the streamline body with the hydrofoil were higher than those of a conventional outboard float. The aerodynamic drag of the combination of streamline body and hydrofoil was computed and compared with that of several conventional outboard floats. The minimum drag of the combination was about 50 percent of the average minimum drag of the conventional floats. The combination at an angle of attack of 0° and an angle of incidence of the hydrofoil of 10° had a drag about 50 percent of the average drag of the conventional floats at an angle of attack of 0° based on the keel just forward of the step, and about 35 percent of the average drag of the conventional floats at an angle of attack of 5°.

PB L 86520. LAND, NORMAN S. and others. The resistance of three series of flying-boat hulls as affected by length-beam ratio. (Natl Advisory Committee for Aeronautics Rept L 764; ARR L 5G23) Oct 1945. 24 p. Price: Microfilm-$1.50 - Photostat-$3.00

Data obtained from several independent length-beam-ratio investigations were correlated in order to determine the general effect of length-beam ratio on the resistance characteristics of three series of flying-boat hulls. The study involved length-beam ratios ranging from 5.07 to 10.5 for a large range of loading conditions. Analyses were made at the best-trim hump, the free-to-trim hump, and a high-speed condition near get-away. Comparisons were made by use of coefficients based on beam, length-beam product, and length^2-beam product. An optimum length-beam ratio was found beyond which no further reduction in hydrodynamic resistance occurred. This optimum varied with the hull lines of the series.

PB L 81242. MAYNARD, JULIAN D. and EVANS, ALBERT J. Tests of four full-scale propellers to determine the effect of trailing-edge extensions on propeller aerodynamic characteristics. (Natl Advisory Committee for Aeronautics Rept L-582, Memo Rept L5D10) Jul 1945. 62 p. Price: Microfilm-$2.50 - Photostat-$7.00

Tests of four, 10-foot diameter, two-blade propellers have been made in the Langley 16-foot high-speed tunnel to determine the effect of trailing-edge extensions on propeller aerodynamic characteristics. Two of the propellers had 20-percent extensions; one with a cambered-type, and the other with a straight-type of extension. Another propeller had a 40-percent extension of the straight type, and the characteristics of these propellers are compared with the characteristics of a propeller with no trailing-edge ex-

tension. This propeller with no trailing-edge extension, which was used as a basis of comparison, had 16-series blade sections and was similar to the NACA design 10-308-03R except the basic design lift coefficient was changed from 0.3 to 0.5. The effect of various angles of extension on propeller characteristics was not investigated, but a calculation of the theoretical pressure distributions indicates that the extension should be designed to prevent such reduction in critical speed of the blade sections for the design condition. The propellers were tested on a 2000-horsepower dynamometer at blade angles of 20°, 25°, 30°, 35°, 40°, 45°, 50°, and 55° at the three-quarter radius. A constant rotational speed was used for each test, and the tunnel airspeed was varied from 60 to 460 miles per hour. The results are representative of full-scale constant-speed propeller operation at helical tip Mach numbers below the critical. The use of an extended trailing edge on a propeller blade was found to be a very effective means of increasing the power absorbed by the propeller with little loss in efficiency. Straight-type trailing-edge extensions of 20 and 40 percent (angle of extension = 6.5° at the 0.7 radius) increased the power coefficient for maximum efficiency an amount almost equal to the percent extension at an advance ratio of 1.0. At values of advance ratio greater than 1.0 the increase in power coefficient becomes smaller; and at values less than 1.0, or in the take-off range, the percent increase in power coefficient is greater than the percent extension. A 20-percent cambered type of extension increased the power coefficient for maximum efficiency considerably more than a 20-percent straight type of extension over the range of advance ratio from 1.0 to 2.5. However, the propeller with the 20-percent cambered type of extension was from 1 to 3 percent less efficient than the propeller with the 20-percent straight type of extension over this range of advance ratio. Based on equal power absorption and constant rotational speed, the efficiency of the propellers with trailing-edge extensions was about the same or perhaps greater than the efficiency of the propeller without an extension for a cruising or a high-speed condition of operation at a high power coefficient. Graphs and photographs are included.

PB L 81255. PARKINSON, JOHN B. and OLSON, ROLAND E. Tank tests of a 1/5 full-size dynamically similar model of the Army OA-9 amphibian with motor-driven propellers - NACA model 117. (Natl Advisory Committee for Aeronautics Rept L-475) Dec 1941. 26 p. Price: Microfilm-$1.50 - Photostat-$3.00

The influence of running propellers on the hydrodynamic characteristics of a model of a seaplane were investigated in the NACA tank to evaluate the importance of power in tests of dynamically similar models. Various increments of power, including that sufficient for self-propulsion, were applied; and a gear allowing fore-and-aft freedom of the model with respect to the towing carriage when self-propelled was provided. It was found that, as in wind-tunnel work, the powered propellers have a large effect on the aerodynamic characteristics of the model and consequently on the hydrodynamic stability, which depends to a certain extent on those characteristics. Furthermore, the interference of the propellers and the slipstream with the wave system around the hull at taxiing speeds is the most significant factor in the problems of spray control and limitation in load imposed by the spray. Hence the use of powered models is desirable in tank tests of new designs for a more precise prediction of stability and spray while taking off and landing. In general, the magnitude of the effects of a given increment of power in such tests decreases as the power is increased. The use of powers and revolution speeds that are less than the scale values would be preferable to neglecting entirely the effects of the running propellers. Fore-and-aft freedom of the model has a negligible effect on the trims at which porpoising begins but changes the character of the motion somewhat. Photographs and diagrams are included.

PB L 81253. ROBINSON, ROBERT C. and JESSEN, HENRY. The effect of Mach number on the aerodynamic characteristics of a single-engine pursuit airplane as determined from tests of a 1/3-scale model. (Natl Advisory Committee for Aeronautics Rept A-76, Memo Rept A5E03) May 1945. 29 p. Price: Microfilm-$1.50 - Photostat-$3.00

Presented herein are the results of tests to determine the effects of Mach number on the aerodynamic characteristics of an Allison powered single-engine pursuit airplane. The lift, drag, and pitching-moment characteristics at high speed are discussed and data are included to show the variation of stability, tail effectiveness, and elevator effectiveness with Mach number. The increments of drag and pitching moment due to a deflector vane in front of the radiator scoop are presented. Diagrams are included.

PB L 86159. SMITH, NORMAN F. and HAALS, DONALD D. Wind-tunnel investigation of a high-critical-speed fuselage scoop including the effects of boundary layer. (Natl Advisory Committee for Aeronautics Rept L-733, ACR L5B01a). Feb 1945. 54 p. Price: Microfilm-$2.25 - Photostat-$6.00

A large air scoop designed for high critical speed has been tested in the Langley 8-foot high-speed tunnel on the fuselage of a 1/5-scale fighter-type airplane. The scoop inlet area was selected from considerations of the total air requirements for a 2000-horsepower engine. The critical Mach number of the scoop tested (apart from the wing-scoop juncture) was 0.75 at an inlet-velocity ratio of 0.6. This value of critical Mach number decreased to 0.67 at an inlet-velocity ratio of 0.4. A slightly lower critical speed was attained in the wing-scoop juncture. The results of these tests indicated that high-critical-speed scoops can be derived directly from high-critical-speed three-dimensional nose-inlet shapes. The effects of boundary layer on scoop characteristics were found to be important at all inlet-velocity ratios. At low values of inlet-velocity ratio, the positive pressure gradient ahead of the scoop entrance caused the boundary layer to separate externally; this separation caused significant losses in total pressure in the scoop duct and high external drag. At high inlet-velocity ratios, the boundary-layer air induced separation in the scoop diffuser, which caused appreciable losses in total pressure. A boundary-layer passage of height twice the normal boundary-layer thickness, when operated at a sufficiently high inlet-velocity ratio, eliminated internal losses due to separation and effected a substantial decrease in drag over that of the original scoop installation.

PB L 81412. TILCH. Lateral stability of the ME-262 jet fighter-bomber (yaw-damping characteristics). (AAF T-2 Translation 1117). Jul 1947. 9 p. Price: Microfilm-$1.00 - Photostat-$1.00

Various modifications of the Flettner auxiliary rudder control, no matter how extreme, had little effect on damping of yaw. Shape of cabin and stern of fuselage were found to affect stability. Comparatively good damping characteristics were found above a speed of 700 km per hour, so that, with a small rudder and consequent oscillations of longer duration, the decrement was adequate. However, this was not true at higher altitudes. Diagrams and graphs are included.

PB L 86510. WALKER, WALTER G. and MEADOWS, MAY T. Analysis of V-G records from the SNB-1 airplane. (Natl Advisory Committee for Aeronautics Rept L-759; Memo Rept L6F27a) Jul 1946. 15 p. Price: Microfilm-$1.25 - Photostat-$2.00

Acceleration and airspeed data in the form of V-G records obtained on an SNB-1 trainer airplane were analyzed to determine the loads and speeds experienced during certain training operations. By utilizing a method of analysis previously developed, results were determined in the form of "flight envelopes" which predict the occurrences of large values of airspeed and acceleration. As a matter of incidental interest, the results were compared with results previously reported for another scout-trainer airplane - the SNJ-4. The comparison shows large differences in the frequency of occurrence of large values of acceleration and airspeed. This result is probably attributable to the fact that the two airplanes are actually of quite different types, notwithstanding their design to the same load and speed requirements.

MISCELLANEOUS

PB L 81704. AUSTIN, OLIVER L., JR. Mist netting for birds in Japan. (Supreme Commander for the Allied Powers. Natural Resources Section. Rept 88) Aug 1947. 22 p. Price: Microfilm-$1.50 - Photostat-$3.00

The abnormal scarcity of small insectivorous birds in Japan today, resulting from unregulated slaughter in an overpopulated land, is felt economically as well as aesthetically. The principal instrument by which Japan's birds have been depleted is the mist net, a unique Japanese invention about which the rest of the world knows almost nothing. While somewhat similar in principle to the infamous Italian bird net, it was developed separately. Neither method influenced the other. The Japanese mist net is simpler in design and construction than the Italian, easier to operate, and equally effective. To further refine their netting technique, the Japanese have added flagging, the toyaba, and the live decoy. They also discovered a method of stimulating the sex organs and altering the sex cycle of captive birds almost a century before western scientists. Netting small birds was brought to present day perfection between 1850-75 and gained increasing popularity as the people developed a taste for bird meat. Since 1925 the reduction in numbers of wild birds has made netting progressively less profitable. Nevertheless, the industry has continued, particularly on the major flyways where the migration is still sufficient to make it worthwhile. Added impetus has been given by the current food shortage, inflation, and black-market prices. The most serious consequence has been the destruction of the normal "balance of nature", which is always dangerous, because its course is unpredictable. In this case, certain insect pests which birds normally keep in control are already inflicting incalculable damage to forest and farm crops. Before this "balance" gets further out of hand, and before elements of Japan's fauna are lost, action must be taken to restore them. Japan's bird life can be restored by immediately adopting modern management practices. Mist netting must be abolished and all small birds given adequate protection. If this is done, Japan's wildlife may again contribute to the nation's economy.

PB L 81554. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. TECHNICAL INTELLIGENCE SECTION. Library list No. 24 A: Addition of unclassified reports, June 22-Jul 5, 1947. (Rept 376) Jul 1947. 17 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 81713. HASSETT, CHARLES C. The utilization of various sugars by Drosophila. n. d. 13 p. Price: Microfilm-$1.00 - Photostat-$1.00

Xylose and lactose are utilized poorly, galactose fairly well, maltose, glucose, sucrose, and fructose very well. The presence of α-glucosidase, β-galactosidase, and β-fructofuranosidase is indicated by these experiments. Army Chemical Center, Maryland.

PB L 74456. MARBURG, GERMANY. UNIVERSITY. A collection of doctors' theses. (FIAT Microfilm Reel I 315. Frames not numbered) 1941-1945. 760 f. Price: Microfilm-$6.00 - Enlargement print-$76.00

The theses reproduced on this FIAT microfilm reel cover material from the fields of medicine (pediatrics, surgery, myocardial disorders), literature and philology (the art of Charles Morgan, the change of an Aesopian fable, the colloquial language of Oeveleberg), and the fine arts (busts sculptured at Berlin during the Goethe era). In the 215 pages of the last item the philosophy and esthetic theories of Goethe and his contemporaries are expounded for the interpretation of this art and its meaning. Because frame numbers are lacking, no enlargement prints of individual reports will be available from this reel. In German.

*PB L 86153. SOBOLEV, A. Debris utilization in Germany. (BIOS Final Rept 1185, Item 33). Oct-Nov 1945. 129 p. Price: Microfilm-$4.00 - Photostat-$13.00

This report covers an investigation of the methods advocated for and the practice of the cleaning and utilization of debris of war damage and demolished buildings in Germany. Special attention was given to machinery designed for cleaning salvaged bricks for reuse. This investigation comes under two headings: Part I. Clearance and utilization of debris; and, Part II. Brick cleaning machines. Seven targets were visited and a detailed description of the processes and methods used are presented. Six appendices covers: reports on debris clearance and utilization; reports on brick clearing machines; notes on rubble concrete making; rubble clearance and utilization in Bielfeld; and synopsis of debris utilization and rebuilding of burnt buildings. The text is illustrated throughout.

PB L 86924. SUPREME COMMANDER FOR THE ALLIED POWERS. ECONOMIC AND SCIENTIFIC SECTION. RESEARCH DIVISION. Japanese economic statistics. (Bulletin 11). Jul 1947. 72 p. Price: Microfilm-$2.75 - Photostat-$8.00

Statistical data on industrial production, transportation, foreign trade, food, prices and family expenditures, wages, and finance are given in this monthly publication.

PB L 86924-S. SUPREME COMMANDER FOR THE ALLIED POWERS. ECONOMIC AND SCIENTIFIC SECTION. RESEARCH DIVISION. Japanese economic statistics. (Supplement to PB 86924). (Bulletin 12). Aug 1947. 76 p. Price: Microfilm-$2.75 - Photostat-$8.00

PB L 81457. U. S. WAR DEPARTMENT. The gas mask. (Tech Manual 3-205). Oct 1941. 143 p. Price: Microfilm-$4.50 - Photostat-$15.00 (Available from Supt of Docs. Washington 25, D. C. $0.25).

PB L 81462. U. S. WAR DEPARTMENT. Guide's manual for TM 30-1509 (Spanish) and TM 30-1512 (Portuguese). Spoken English, basic courses - units I-12. (Tech Manual 30-1511A). Feb 1945. 121 p. Price: Microfilm-$4.00-Photostat-$13.00

PB L 81476. U. S. WAR DEPARTMENT. Handbook on German military forces. (Tech Manual 30-451). Mar 1945. 734 p. Price: Microfilm-$7.00 - Photostat-$74.00

PB L 81475. U. S. WAR DEPARTMENT. Handbook on Japanese military forces. (Tech Manual E-30-480). Oct 1944. 418 p. Price: Microfilm-$7.00 - Photostat-$42.00

PB L 81459. U. S. WAR DEPARTMENT. L'Inglese parlato: Corso elementare - unita I-XII, spoken English, basic course-units I-XII. (Tech Manual 30-1503). Apr 1944. 245 p. Price: Microfilm-$7.00 - Photostat-$26.00

A basic manual for learning English prepared for Italian-speaking individuals. For part II see PB L 81460.

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CHEMICALS AND ALLIED PRODUCTS

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L 63322 Frames 1-66	Index compiled by Hoechst patent office of I. G. Farbenindustrie A. G., of patent applications of I. G. Uerdingen, 1938-1945, giving internal number, patent office number, date, and German title of application. In German.	$5.00
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L 63325 Frames 73-75	Process for producing diarylamines. Ger. patent application I 62683 IVc/129, dated Oct 20, 1938. In German.	1.00
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L 63490 Frames 590-593 — **Process for preparing derivatives of sulfone diamides.** Ger. patent application I 75207 IVd/12o, dated May 31, 1943. In German. 1.00

L 63491 Frames 594-595 — **Process for preparing asymmetrically disubstituted ureas.** Ger. patent application I 75208 IVc/12o, dated Jun 3, 1943. In German. 1.00

L 63492 Frames 596-598 — **Process for preparing 2,2'-dihydroxydiphenyl ethers.** Ger. patent application I 75209 IVc/12qu, dated Jun 3, 1943. In German. 1.00

L 63493 Frames 599-600 — **Gelatinizers and softeners for cellulose esters of organic acids.** Ger. patent application I 75254 IVc/39b, dated Jun 11, 1943. In German. 1.00

L 63494 Frames 601-602 — **Process for the preservation of wood.** Ger. patent application I 75508 IVd/38h, dated Jul 15, 1943. In German. 1.00

L 63495 Frames 603-604 — **Process for preparing zinc chloride and chromium (III) chloride.** Ger. patent application I 75642 IVb/12n, dated Aug 4, 1943. In German. 1.00

L 63496 Frames 605-606 — **Process for preparing alkanolamines.** Ger. patent application I 75685 IVc/12qu, dated Aug 11, 1943. In German. 1.00

L 63497 Frames 607-608 — **Process for preparing zinc chloride.** Ger. patent application I 75764 IVb/12n, dated Aug 28, 1943. In German. 1.00

L 63498 Frames 609-610 — **Process for preparing carbonates of vicinal glycols.** Ger. patent application I 75792 IVd/12o, dated Sep 3, 1943. In German. 1.00

L 63499 Frames 611-613 — **Flange holder.** Ger. patent application I 75915 Ib/49h, dated Sep 24, 1943. In German. 1.00

L 63500 Frames 614-615 — **Wood preservative.** Ger. patent application I 75933 IVd/38h, dated Sep 25, 1943. In German. 1.00

L 63501 Frames 616-617 — **Hydrogenation process.** Ger. patent application I 76125 IVc/12o, dated Oct 29, 1943. In German. 1.00

L 63502 Frames 618-620 — **Process for preparing condensation products.** Ger. patent application I 76167 IVc/39c, dated Oct 30, 1943. In German. 1.00

L 63503 Frames 621-622 — **Process for working up the oxidation products of saturated cyclic hydrocarbons.** Ger. patent application I 76260 IVc/12o, dated Nov 17, 1943. In German. 1.00

L 63504 Frames 623-624 — **Process for preparing condensation products.** Ger. patent application I 76493 IVc/39c, dated Dec 20, 1943. In German. 1.00

L 63505 Frame 625 — **Ball bodies for viscosimeters.** Ger. patent application I 76432 IIb/42 l, dated Dec 20, 1943. In German. 1.00

L 63506 Frames 626-627 — **Process for preparing esters of chloroformic acid.** Ger. patent application I 76598 IVd/12o, dated Jan 12, 1944. In German. 1.00

L 63507 Frames 628-629 — **Process for preparing esters of chloroformic acid.** Ger. patent application I 76597 IVd/12o, dated Jan 12, 1944. In German. 1.00

L 63508 Frames 630-631 — **Process preparing condensation products.** Ger. patent application I 76831 IVc/39c, dated Feb 14, 1944. In German. 1.00

L 63509 Frames 632-633 — **Process for preparing water-proof cellulose derivatives.** Ger. patent application I 76909 IVc/12o, dated Feb 28, 1944. In German. 1.00

L 63510 Frames 634-635 — **Process for preparing aryl carbonates.** Ger. patent application I 76994 IVc/12qu, dated Mar 8, 1944. In German. 1.00

L 63511 Frames 636-637 — **Process for the decomposition of zinc chromite or of mixtures of zinc oxide and chromium oxide.** Ger. patent application I 77095 IVb/12n, dated Mar 24, 1944. In German. 1.00

L 63512 Frames 638-639 — **Process for preparing nitrogen containing polycondensation products.** Ger. patent application I 77349 IVc/39c, dated May 2, 1944. In German. 1.00

L 63513 Frames 640-643 — **Process for preparing nitrogen-containing, resinous condensation products.** Ger. patent application I 77348 IVc/39c, dated May 5, 1944. In German. 1.00

L 63514 Frames 644-646 — **Preservation process.** Ger. patent application I 77491 IVd/38, dated May 19, 1944. In German. 1.00

L 61392 Frames 647-648 — **Process for the chlorination of naphthalene.** Ger. patent application I 77433 IVd/12o, dated May 22, 1944. In German. 1.00

L 63515 Frames 649-650 — **Process for preparing cellulose esters.** Ger. patent application I 77469 IVc/12c, dated May 27, 1944. In German. 1.00

L 63516 Frames 651-653 — **Process for preparing hexachlorenanthiboquinone.** Ger. patent application I 77536 IVc/12o, dated Jun 3, 1944. In German. 1.00

L 63517 Frames 654-655 — **Process for the catalytic reduction of succinic esters.** Ger. patent application I 77537 IVc/12o, dated Jun 3, 1944. In German. 1.00

L 63518 Frames 656-657 — **Process for preparing benzyl cellulose.** Ger. patent application I 77570 IVc/39b, dated Jun 12, 1944. In German. 1.00

L 63519 Frames 658-660 — **Gluing process.** Ger. patent application I 77653 IVd/22l, dated Jun 24, 1944. In German. 1.00

L 63520 Frames 661-663 — **Method for the prevention of autoxidation of fats and oils.** Ger. patent application I 77903 IVa/23a, dated Jul 26, 1944. In German. 1.00

L 63521 Frames 664-666 — **Process for preparing octachloridene.** Ger. patent application I 77678 IVd/12o, dated Jul 29, 1944. In German. 1.00

L 63522 Frames 667-669 — **Process for preparing polychlorketones of the indene series.** Ger. patent application I 77677 IVd/12o, dated Jul 29, 1944. In German. 1.00

L 63523 Frames 670-671 — Wood preservative. Ger. patent application I 78172 IVd/38h, dated Sep 7, 1944. In German. 1.00

L 63524 Frames 672-673 — Process for preparing condensation products. Ger. patent application I 78212 IVc/39c, dated Sep 8, 1944. In German. 1.00

L 63525 Frames 674-675 — Process for preparing catalysts containing chromium oxide and copper oxide. Ger. patent application I 78 228 IVb/12g, dated Sep 8, 1944. In German. 1.00

L 63526 Frames 676-680 — Process for preparing condensation products. Ger. patent application I 78023 IVc/39c, dated Aug 16, 1944. In German. 1.00

L 63527 Frames 681-682 — Process for preparing polyvinyl esters. Ger. patent application I 78147 IVc/39c, dated Aug 25, 1944. In German. 1.00

L 63528 Frames 683-688 — Arrangement for the automatic measurement of the softening point by the Krämer-Sarnow-Nagel method. Ger. patent application I 78551 IXl/42l, dated Nov 21, 1944. In German. 1.00

L 63529 Frames 689-691 — Process for preparing asymmetrically N,N'-substituted ureas. Ger. patent application I 78589 IVc/12o, dated Nov 28, 1944. In German. 1.00

L 63530 Frames 692-693 — Insecticides. Ger. patent application I 78590 IVa/45 1, dated Nov 28, 1944. In German. 1.00

L 63531 Frames 694-695 — Process for producing alcohols. Ger. patent application I 78689 IVd/12o, dated Dec 28, 1944. In German. 1.00

L 63532 Frames 696-697 — Process for preparing esters of chloroformic acid. Ger. patent application, dated Jan 1, 1945. In German. 1.00

L 63533 Frames 698-699 — Process for preparing nitrogenous condensation products. Ger. patent application, dated Jan 1, 1945. In German. 1.00

L 63321 — Patent applications of I. G. Verdingen Patent Office, 1936-1944, complete with index compiled by Hoechst patent office. Index. 2.00

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L 67037 Frames 2030-2036 — Production of magnesium oxide from raw materials containing magnesia. Ger. patent application I 76843 IVb/12m, dated Feb 19, 1944. In German. $1.00

L 67200 Frames 2037-2040 — Operation of the filling chamber in molding presses, and the like. Ger. patent application I 77010 VIb/80a, dated Feb 23, 1944. In German. 1.00

L 67038 Frames 2041-2042 — Process for sweetening hydrogen ion exchange filters in desalting plants for sugar solutions. Ger. patent application I 76956 IVa/89c, dated Feb 26, 1944. In German. 1.00

L 67039 Frames 2043-2045 — Plant protectives containing nitrophenol. Ger. patent application I 76958 IVa/451, dated Mar 3, 1944. In German. 1.00

L 67040 Frames 2046-2052 — Process for production of rods, tubes and profiles by extrusion presses. Ger. patent application I 76981 Ib/7b, dated Mar 8, 1944. In German. 1.00

L 67041 Frames 2053-2055 — Aqueous lubricants. Ger. patent application I 77006 IVd/23c, dated Mar 13, 1944. In German. 1.00

L 67042 Frames 2056-2059 — Lining of electrolytic cells containing a molten electrolyte. Ger. patent application A 99441 IVb/12h, dated Mar 15, 1944. In German. 1.00

L 67043 Frames 2060-2065 — Process for reviving electrolytes in electrolytic production of magnesium. Ger. patent application I 77023 VIa/40c, dated Mar 16, 1944. In German. 1.00

L 67044 Frames 2066-2076 — Die block. Ger. patent application I 77078 Ib/49g, dated Mar 20, 1944. In German. 1.00

L 67045 Frames 2077-2080 — Process for production of metal ingots. Ger. patent application I 77066 VIa/31c, dated Mar 28, 1944. In German. 1.00

L 67046 Frames 2081-2084 — Process for production of crystallized neutral ammoniumpyrophosphate. Ger. patent application I 77112 IVb/12i, dated Mar 28, 1944. In German. 1.00

L 67047 Frames 2085-2090 — Chill mold for continuous casting of metal ingots. Ger. patent application I 77141 IVa/31c, dated Apr 3, 1944. In German. 1.00

L 67048 Frames 2091-2096 — Heat exchanger consisting chiefly of graphite tubes. Ger. patent application I 77152 Ia/17f, dated Apr 3, 1944. In German. 1.00

Frame 2097 — This frame is missing.

L 87101 Frame 2098 — Process for producing a tanning aid. (incomplete) Ger. patent application I 77264 IVd/28n, dated Apr 6, 1944. In German. 2.00

L 67049 Frames 2099-2100 — Process for production of emulsifing agents soluble in oil. Ger. patent application I 77265 IVd/12o, dated Apr 6, 1944. In German. 1.00

L 67050 Frames 2101-2102 — Apparatus for cleaning of catalysts in plants utilizing weak electric current. Ger. patent application I 77196 VIIIb/21c, dated Apr 15, 1944. In German. 1.00

L 67051 Frames 2103-2106 — Process for continuous production of sulfamides. Ger. patent application I 77312 IVd/12b, dated Apr 18, 1944. In German. 1.00

L 67052 Frames 2107-2110 — Process for production of pest control agents. Ger. patent application I 77219 IVa/45 1, dated Apr 19, 1944. In German. 1.00

L 67053 Frames 2111-2114 — Production of trialkali phosphate from phosphorous acid or its salts. Ger. patent application I 77238

IVb/12i, dated Apr 22, 1944. In German. 1.00

L 67054 Frames 2115-2116 — Arrangement of molds for sand-casting of metals. Ger. patent application I 77242 VIa/31c, dated Apr 22, 1944. In German. 1.00

L 67055 Frames 2117-2118 — Process for preparation of formed detergents from cleansing substances free from or poor in fatty soap. Ger. patent application I 77313 IVd/81, dated Apr 27, 1944. In German. 1.00

L 67056 Frames 2119-2124 — Process for cooling of hot liquids in rarefied air chambers by so-called "cold boiling." Ger. patent application I 77357 IVb/21g, dated Apr 28, 1944. In German. 1.00

L 67057 Frames 2125-2129 — Process for thermal treatment of extrusion press products made from temperable aluminum alloys. Ger. patent application I 77339 VIa/40d, dated May 3, 1944. In German. 1.00

L 67058 Frames 2130-2132 — Process for refining the metallic texture and increasing the tensile strength of magnesium and its alloys. Ger. patent application I 77340 VIa/40a, dated May 3, 1944. In German. 1.00

L 67059 Frames 2133-2138 — Process and apparatus for speeding up the deposition of precipitates and for improving their filtering qualities. Ger. patent application I 77324 IVb/12g, dated May 8, 1944. In German. 1.00

L 67060 Frames 2139-2140 — Process for extraction of impurities, such as lead, copper, and arsenic, from sulfite liquors. Ger. patent application I 77325 IVa/6a, dated May 8, 1944. In German. 1.00

L 67061 Frames 2141-2143 — Process for obtaining iodine from brines. Ger. patent application I 77399 IVb/12i, dated May 16, 1944. In German. 1.00

L 67062 Frames 2144-2145 — Agent for lowering the steam pressure of solutions, pastes, and the like. Ger. patent application I 77538 IVa/12a, dated May 23, 1944. In German. 1.00

L 67063 Frames 2146-2147 — Process for production of dry, non-inflammable plant protectives containing dinitrophenol. Ger. patent application I 77397 IVa/45 1, dated May 13, 1944. In German. 1.00

L 67064 Frames 2148-2149 — Process for producing powdery non-inflammable plant protectives containing dinitrophenol. Ger. patent application I 77398 IVa/45 1, dated May 15, 1944. In German. 1.00

L 67065 Frames 2150-2151 — Feeding stuffs on synthetic basis, especially suitable for ruminants. Ger. patent application I 77400 IVb/53g, dated May 16, 1944. In German. 1.00

L 67066 Frames 2152-2154 — Process for purification of paraffin sulfonates. Ger. patent application I 77441 IVd/12c, dated May 17, 1944. In German. 1.00

L 67067 Frames 2155-2162 — Brush arrangement for collector ring transmitters of high-voltage current. Ger. patent application I 77480 VIIId/21d, dated May 20, 1944. In German. 1.00

L 67068 Frames 2163-2166 — Process and device for interchanging flow adjusting and measuring plates during operation. Ger. patent application I 77442 IXb/42e, dated May 20, 1944. In German. 1.00

L 67069 Frames 2167-2170 — Drying of light-metal filings. Ger. patent application I 77470 VIa/48d, dated May 20, 1944. In German. 1.00

L 67070 Frames 2171-2174 — Lubricant for treatment of metals, particularly in molding of metals where no filings are formed. Ger. patent application I 77494 IVd/23c, dated May 23, 1944. In German. 1.00

L 67071 Frames 2175-2183 — Increasing the throughput and separability in rectification columns. Ger. patent application I 77540 IVa/12a, dated May 27, 1944. In German. 1.00

L 67072 Frames 2184-2185 — Process for preventing an unduly high number of revolutions in steam turbines. Ger. patent application I 77472 Ia/14c, dated May 27, 1944. In German. 1.00

L 67073 Frames 2186-2193 — Process for obtaining pure metals from metals and metal salts containing impurities. Ger. patent application I 77541 VIa/40a, dated Jun 2, 1944. In German. 1.00

L 67074 Frames 2194-2196 — Process for sealing the walls of smelting furnaces. Ger. patent application I 77502 VIb/80b, dated Jun 3, 1944. In German. 1.00

L 67075 Frame 2197 — Process for waste-free molding of manufactured parts by bending and twisting. Ger. patent application I 77503 Ib/49h, dated Jun 6, 1944. In German. 1.00

L 67076 Frames 2198-2211 — Process and apparatus for continuous casting of metal ingots. Ger. patent application I 77504 VIa/31c, dated Jun 6, 1944. In German. 1.00

L 67077 Frames 2212-2215 — Process for continuous removal of oxygen from waters. Ger. patent application I 77574 IVb/85b, dated Jun 8, 1944. In German. 1.00

L 67078 Frames 2216-2218 — Production of tetra alkali pyrophosphate. Ger. patent application I 77575 IVb/12i, dated Jun 8, 1944. In German. 1.00

L 67079 Frames 2219-2220 — Use of magnesium alloys. Ger. patent application I 77580 VIa/40b, dated Jun 14, 1944. In German. 1.00

L 67080 Frames 2221-2222 — Thickener for oils. Ger. patent application I 77573 IVd/23c, dated Jun 8, 1944. In German. 1.00

L 67081 Frames 2223-2225 — Hydraulically operated crucible tipper for heavy pig iron forges. Ger. patent application I 77578 VIa/31c, dated Jun 9, 1944. In German. 1.00

L 67082 Frames 2226-2230 — Process and apparatus for production of metal ingots in chill molds by the extrusion casting method. Ger. patent application I 77637 VIa/31c, dated Jun 20, 1944. In German. 1.00

L 67083 Frames 2231-2233 — Process for reducing the gas content of sheets of aluminum and aluminum alloys. Ger. patent application I 77636 VIa/40d, dated Jun 20, 1944. In German. 1.00

L 67084 Frames 2234-2237 — Process for reduction of organic nitro compounds. Ger. patent application I 77617 IVb/12g, dated Jun 17, 1944. In German. 1.00

L 67085 — Process for production of alkali

Frames 2238-2240 — phosphite. Ger. patent application I 77669 IVb/121, dated Jun 24, 1944. In German. 1.00

L 67086 Frames 2241-2244 — Power plant. Ger. patent application I 77700 X/13a, dated Jun 23, 1944. In German. 1.00

L 67087 Frames 2245-2247 — Process for production of extrusion pressed and forged parts from temperable aluminum alloys. Ger. patent application I 77655 VIa/40d, dated Jun 26, 1944. In German. 1.00

L 67088 Frames 2248-2249 — Process for production of solid acids in coarse and/or molded form, for catalytic purposes. Ger. patent application I 77711 IVb/12g, dated Jun 29, 1944. In German. 1.00

L 67089 Frames 2250-2252 — Ring roller press. Ger. patent application I 77712 VIb/10b, dated Jun 30, 1944. In German. 1.00

L 67090 Frames 2253-2256 — Process for concentration of sulfuric acid. Ger. patent application I 77755 IVb/121, dated Jul 6, 1944. In German. 1.00

L 67091 Frames 2257-2258 — Catalyst for conversion of ammonia to nitric oxide by oxidation. Ger. patent application I 77797 IVb/121, dated Jul 8, 1944. In German. 1.00

L 67092 Frames 2259-2260 — Process for thermal treatment of light metals. Ger. patent application I 77769 VIa/40d, dated Jul 14, 1944. In German. 1.00

L 67093 Frames 2261-2265 — Process for concentration of sulfuric acid. Ger. patent application I 77798 IVb/121, dated Jul 13, 1944. In German. 1.00

L 67094 Frames 2266-2267 — Process for increasing the resistance to corrosion of manufactured parts of magnesium alloys. Ger. patent application I 77836 VIa/48d, dated Jul 18, 1944. In German. 1.00

L 67095 Frames 2268-2271 — Process for thermal treatment of light metals parts. Ger. patent application I 77837 VIa/40d, dated Jul 18, 1944. In German. 1.00

L 67096 Frames 2272-2278 — Flue for carrying off dust-laden gases. Ger. patent application I 77929 V/24g, dated Jul 13, 1944. In German. 1.00

L 67097 Frames 2279-2283 — Adjustment of the holder of self-heating anodes in electrolytic baths, particularly for production of aluminum. Ger. patent application A 100463 VIa/40c, dated Jul 18, 1944. In German. 1.00

L 67098 Frame 2284 — Metal cleaner and polish. Ger. patent application I 77879 IVc/22g, dated Jul 21, 1944. In German. 1.00

L 67099 Frames 2285-2289 — Process for refining the metallic texture and increasing the tensile strength of manufactured parts of magnesium alloys. Ger. patent application I 77819 VIa/40a, dated Jul 21, 1944. In German. 1.00

L 67100 Frames 2290-2291 — Lubricant for the treatment and waste-free molding of metals. Ger. patent application I 77880 IVd/23c, dated Jul 21, 1944. In German. 1.00

L 67101 Frames 2292-2296 — Process for production of desalted and silica-free water. In German. 1.00

L 67102 Frames — Apparatus for production of carbon disulfide. Ger. patent application

2297-2300 — I 77913 IVb/121, dated Aug 2, 1944. In German. 1.00

L 67103 Frames 2301-2302 — Anion exchangers. Ger. patent application I 77975 IVe/12o, dated Aug 3, 1944. In German. 1.00

L 67104 Frames 2303-2304 — Process for production of ion exchangers. Ger. patent application I 77938 IVb/121, dated Aug 5, 1944. In German. 1.00

L 67105 Frames 2305-2308 — Stabilization of chlorine-containing compounds of high molecular weight. Ger. patent application I 77937 IVc/39b, dated Aug 5, 1944. In German. 1.00

L 67106 Frames 2309-2311 — Stabilization of chlorine-containing compounds of high molecular weight. Ger. patent application I 77976 IVc/39b, dated Aug 7, 1944. In German. 1.00

L 67107 Frames 2312-2313 — Baking powder. Ger. patent application I 77988 IVa/2c, dated Aug 5, 1944. In German. 1.00

L 67108 Frames 2314-2316 — Production of long-fibered asbestos. Ger. patent application I 77977 VIb/80b, dated Aug 11, 1944. In German. 1.00

L 67109 Frames 2317-2320 — Cleaning agent for the thermal treatment of light metals. Ger. patent application I 78062 VIa/40a, dated Aug 18, 1944. In German. 1.00

L 67110 Frames 2321-2324 — Process for refining the metallic texture and increasing the tensile strength of magnesium alloys containing aluminum. Ger. patent application I 78115 IVa/40b, dated Aug 31, 1944. In German. 1.00

L 67111 Frames 2325-2326 — Process for production of stones from ash and slag. Ger. patent application I 78072 VIb/80b, dated Aug 26, 1944. In German. 1.00

L 67112 Frames 2327-2332 — Use of zinc-aluminum alloys. Ger. patent application I 78092 VIa/40b, dated Aug 31, 1944. In German. 1.00

L 67113 Frames 2333-2334 — Process for prevention of solidification or hardening of hydroscopic salts. Ger. patent application I 77989 IVb/12g, dated Aug 10, 1944. In German. 1.00

L 67114 Frames 2335-2339 — Process for production of hexachloroethane. Ger. patent application I 65702 IVd/12o, dated Sep 28, 1939. In German. 1.00

L 67115 Frames 2340-2343 — Process for thermal treatment of temperable aluminum alloys for riveting. Ger. patent application I 65949 IVa/40d, dated Nov 14, 1939. In German. 1.00

L 67116 Frames 2344-2348 — Magnesium alloys highly resistant to heat. Ger. patent application I 66463 VI/40b, dated Feb 10, 1940. In German. 1.00

L 67117 Frames 2349-2356 — Aluminum alloys. Ger. patent application I 66740 IVa/40d, dated Mar 23, 1940. In German. 1.00

L 67118 Frames 2357-2359 — Process for separation of magnesium from aluminum-magnesium alloys. Ger. patent application I 67293 VI/40a, dated Jul 1, 1940. In German. 1.00

L 67119 Frames — Process for extraction of aluminum from alloys by distillation. Ger.

2360-2367 patent application I 67788 IVa/40a, dated Sep 6, 1940. In German. 1.00

L 67120 Frames 2368-2370 **Process for production of shaped forms from aluminum sulfate, alkali sulfate, and coke.** Ger. patent application I 69005 IVb/12m, dated Mar 4, 1941. In German. 1.00

L 67121 Frames 2371-2374 **Process for desilicifying of magnesium silicon alloys.** Ger. patent application I 70246 VI/40b, dated Aug 14, 1941. In German. 1.00

L 67122 Frames 2375-2381 **Process for desilicifying of magnesium silicon alloys.** Ger. patent application I 70247 VIa/40b, dated Aug 14, 1941. In German. 1.00

L 67123 Frames 2382-2390 **Process for desilicifying of magnesium silicon alloys.** Ger. patent application I 70248 VIa/40b, dated Aug 14, 1941. In German. 1.00

L 67124 Frames 2391-2395 **Process for separating magnesium silicide and aluminides from light-metal melts by liquation.** Ger. patent application I 70249 VI/40a, dated Aug 14, 1941. In German. 1.00

L 67125 Frames 2396-2405 **Process for recovering aluminum from aluminum alloys by extraction with mercury.** Ger. patent application I 70250 VIa/40a, dated Aug 14, 1941. In German. 1.00

L 67126 Frames 2406-2414 **Process for removing magnesium silicide and aluminides which were separated from light-metal melts by liquation.** Ger. patent application I 70953 VI/40a, dated Nov 27, 1941 In German. 1.00

L 67127 Frames 2415-2421 **Process and appliance for melting scrap metal.** Ger. patent application I 70952 VI/40a, dated Nov 27, 1941. In German. 1.00

L 67128 Frames 2422-2429 **Separation of mechanically mixed metals.** Ger. patent application I 70951 VI/90a, dated Nov 27, 1941. In German. 1.00

L 67129 Frames 2430-2437 **Process for removing magnesium silicide and aluminides which were separated from light-metal melts by liquation.** Ger. patent application I 70954 VIa/40a, dated Nov 27, 1941. In German. 1.00

L 67130 Frames 2438-2440 **Process for removal of silicon from magnesium-silicon alloys.** Ger. patent application I 70957 VI/40b, dated Nov 27, 1941. In German. 1.00

L 67131 Frames 2441-2443 **Process for removal of silicon from magnesium-silicon alloys.** Ger. patent application I 70956 VI/40b, dated Nov 27, 1941. In German. 1.00

L 67132 Frames 2444-2446 **Process for removal of silicon from aluminum-silicon alloys.** Ger. patent application I 70955 VIa/40b, dated Nov 27, 1941. In German. 1.00

L 67133 Frames 2447-2460 **Melting of metal shavings and filings.** Ger. patent application I 70967 VI/40a, dated Nov 27, 1941. In German. 1.00

L 67134 Frames 2461-2462 **Separation and recovery of lead from lead cable waste.** Ger. patent application I 70968 VI/40a, dated Nov 27, 1941. In German. 1.00

L 67135 Frames 2463-2470 **Melting down of light-metal and light-metal alloy shavings and filings.** Ger. patent application I 70969 VI/40a, dated Nov 27, 1941. In German. 1.00

L 67136 Frames 2471-2474 **Process for melting down of shavings and finer waste from light-metals and their alloys.** Ger. patent application I 70970 VI/40a, dated Nov 27, 1941. In German. 1.00

L 67137 Frames 2475-2476 **Paints.** Ger. patent application I 71288 IVc/22g, dated Jan 9, 1942. In German. 1.00

L 67138 Frames 2477-2480 **Process for obtaining sodium-aluminum fluoride from aqueous solutions of sodium fluoride.** Ger. patent application I 71348 IVb/12i, dated Jan 15, 1942. In German. 1.00

L 67139 Frames 2481-2489 **Production of conical profiles in rolling mills with a conical engraver.** Ger. patent application I 71728 Ib/7a, dated Mar 9, 1942. In German. 1.00

L 67140 Frames 2490-2494 **Process for obtaining ferrovanadium.** Ger. patent application I 71847 VIa/40a, dated Mar 24, 1942. In German. 1.00

L 67141 Frames 2495-2498 **Obtaining aluminum from clay.** Ger. patent application I 72831 IVb/12m, dated Jul 31, 1942. In German. 1.00

L 67142 Frames 2499-2500 **Process for production of aluminum fluoride.** Ger. patent application I 72899 IVb/12i, dated Aug 11, 1942. In German. 1.00

L 67143 Frames 2501-2506 **Surface protection of manufactured parts of magnesium and magnesium alloys.** Ger. patent application I 73947 VIa/48d, dated Dec 24, 1942. In German. 1.00

L 67144 Frames 2507-2513 **Blast furnace for melting down scrap metal containing light metals like aluminum** Ger. patent applicatiin I 74169 VIa/48d, dated Jan 28, 1943. In German. 1.00

L 67145 Frames 2514-2521 **Process for production of solid and hollow profiles by extrusion presses.** Ger. patent application I 74407 Ib/7b, dated Feb 25, 1943. In German. 1.00

L 67146 Frames 2522-2526 **Process for removal of the iron from aluminum and aluminum alloys.** Ger. patent application I 74966 VIa/40a, dated May 11, 1943. In German. 1.00

L 67147 Frames 2527-2529 **Process for production of catalysts.** Ger. patent application I 74991 IVc/39c, dated May 11, 1943. In German. 1.00

L 67148 Frames 2530-2533 **Process for preparation of aluminum alloys for the recovery of aluminum by extraction of the alloys with mercury.** Ger. patent application I 75197 VIa/40a, dated Jun 3, 1943. In German. 1.00

L 67149 Frames 2534-2540 **Process for the continuous feeding of the extracted metal to the extraction vessel in recovering aluminum from its alloys by mercury extraction.** Ger. patent application I 75499 VIa/40a, dated Jul 16, 1943. In German. 1.00

L 67150 Frames 2541-2544 **Process for obtaining magnesium by electrothermal reduction.** Ger. patent application F 63304 VIa/40a, dated Jul 23, 1943. In German. 1.00

L 67151 **Production of aluminum fluoride from**

Frames 2545-2546 — cryolite or cryolitic products like alkali aluminum fluoride. Ger. patent application I 75655 IVb/12i, dated Aug 6, 1943. In German. 1.00

L 67152 Frames 2547-2548 — Process for production of shapes from after-chlorinated polyvinyl chloride. Ger. patent application I 78174 XII/39a, dated Sep 2, 1944. In German. 1.00

L 67153 Frames 2549-2550 — Stabilization of chlorination products of substances with high molecular weight. Ger. patent application I 78175 IVc/39b, dated Sep 7, 1944. In German. 1.00

L 67154 Frames 2551-2556 — Process for increasing the corrosion resistance of manufactured parts of magnesium alloys containing aluminum. Ger. patent application I 78188 VIa/48d, dated Sep 11, 1944. In German. 1.00

L 67155 Frames 2557-2558 — Process for production of resinous condensation products. Ger. patent application I 78191 IVc/39e, dated Sep 12, 1944. In German. 1.00

L 67156 Frames 2559-2563 — Milling device for commutators. Ger. patent application I 78295 Ib/49b, dated Sep 22, 1944. In German. 1.00

L 67157 Frames 2564-2565 — Substitute for fermentation fat. Ger. patent application I 78342 IVa/6b, dated Sep 22, 1944. In German. 1.00

L 67158 Frames 2566-2570 — Apparatus for production of carbon disulfide. Ger. patent application I 78297 IVb/12i, dated Sep 23, 1944. In German. 1.00

L 67159 Frame 2571 — Purification and drying of used oils, in particular turbine oil. Ger. patent application I 78296 IVb/12d, dated Sep 23, 1944. In German. 1.00

L 67160 Frames 2572-2573 — Heating cartridge. Ger. patent application I 78280 VI/10b, dated Sep 28, 1944. In German. 1.00

L 67161 Frame 2574 — Catalysts for luminescence reactions. Ger. patent application I 78299 IVa/57b, dated Sep 28, 1944. In German. 1.00

L 67162 Frames 2575-2581 — Process for production of sheet metal with high and uniform tensile strength, particularly from magnesium alloys containing aluminum. Ger. patent application I 78345 Ib/7a, dated Oct 3, 1944. In German. 1.00

L 67163 Frame 2582 — Heating bag. Ger. patent application I 78360 IVb/24n, dated Oct 9, 1944. In German. 1.00

L 67164 Frames 2583-2586 — Process and apparatus for purification of gases. Ger. patent application I 78362 III/40n, dated Oct 11, 1944. In German. 1.00

L 67165 Frame 2587 — Catalysts for luminescence reactions. Ger. patent application I 78361 IVa/57b dated Oct 11, 1944. In German. 1.00

L 67166 Frames 2588-2589 — Non-hygroscopic shapes from paraffin sulfonates. Ger. patent application I 78453 IVd/8i, dated Oct 27, 1944. In German. 1.00

L 67167 Frames 2590-2593 — Process for production of foods and condiments, particularly of cocoa and cocoa preparations, with the use of nutrient yeast. Ger. patent application I 78439 IVa/53f, dated Oct 28, 1944. In German. 1.00

L 67168 Frames 2594-2596 — Process for the extrusion cast production of rolled metal sheets from light metal alloys. Ger. patent application F 78509 VIa/31c, dated Nov 14, 1944. In German. 1.00

L 67169 Frames 2597-2599 — Utilization of aluminum alloys as material for mold castings with a high degree of durability. Ger. patent application I 78488 VIa/40b, Nov 9, 1944. In German. 1.00

L 67170 Frames 2600-2602 — Process and apparatus for evaporation of liquids. Ger. patent application I 78506 VIa/12a, dated Nov 7, 1944. In German. 1.00

L 67171 Frames 2603-2604 — Process for production of metal ingots. Ger. patent application I 78487 VIa/31c, dated Nov 7, 1944. In German. 1.00

L 67172 Frames 2605-2611 — Production of solid and hollow profiles in extrusion presses. Ger. patent application I 78521 (rest illegible) dated Nov 15, 1944. In German. 1.00

L 67173 Frames 2612-2615 — Process for carrying out ion exchange reactions with the use of several different exchangers. Ger. patent application I 78524 IVc/12o, dated Nov 18, 1944. In German. 1.00

L 67174 Frames 2616-2617 — Process for increasing the durability of alkaline condensed cation exchange resins. Ger. patent application I 78537 IVc/39b, dated Nov 17, 1944. In German. 1.00

L 67175 Frames 2618-2619 — Process for separation of mixtures resulting from incomplete sulfochlorination of hydrocarbons, particularly of paraffin hydrocarbons with high-molecular weight. Ger. patent application I 78536 IVd/12o, dated Nov 15, 1944. In German. 1.00

L 67176 Frames 2620-2621 — Process for production of sulfonic acids and sulfonates of paraffin hydrocarbons with high-molecular weight. Ger. patent application I 78523 IVd/12o, dated Nov 15, 1944. In German. 1.00

L 67177 Frames 2622-2623 — Process for production of sulfonic acids. Ger. patent application I 78522 IVd/12o, dated Nov 15, 1944. In German. 1.00

L 67178 Frames 2624-2625 — Agent for drying and/or storing of razor-blades. Ger. patent application F 78603 X/33c, dated Nov 17, 1944. In German. 1.00

L 67179 Frame 2626 — Razor blades and process for their production. Ger. patent application I 78538 XI/69, dated Nov 17, 1944. In German. 1.00

L 67180 Frames 2627-2628 — Process for purification of organic bases during extraction of concentrated sulfurous acid from diluted gases containing SO_2. Ger. patent application I 78540 IVb/12i, dated Nov 20, 1944. In German. 1.00

L 67181 Frames 2629-2632 — Process for production of blocks and ingots of light-metal alloys, and chill mold for use in producing them. Ger. patent application I 78552 VIa/31c, dated Nov 21, 1944. In German. 1.00

L 67182 Frames 2633-2634 — Process for obtaining crystallized aliphatic hydroxycarboxylic acids, like tartaric acid. Ger. patent application I 78592 IVd/12o, dated Nov 30, 1944. In German. 1.00

L 67183 Frames 2635-2637 — Process for processing of whey. Ger. patent application I 78593 IVa/53c, dated Nov 30, 1944. In German. 1.00

L 67184 Frames 2638-2639 — Process for fractional separation of vitamins, such as B_1 and B_2, from solutions. Ger. patent application I 78594 IVa/30h, dated Nov 30, 1944. In German. 1.00

L 67185 Frames 2640-2641 — Process for fractional separation of vitamins, such as B_1 and B_2, from solutions. Ger. patent application I 78595 IVa/30h, dated Nov 30, 1944. In German. 1.00

L 67186 Frames 2642-2643 — Chill mold for extrusion casting. Ger. patent application I 78619 VIa/31c, dated Dec 8, 1944. In German. 1.00

L 67187 Frames 2644-2645 — Process for production of pure paraffin sulfonates. Ger. patent application I 78660 IVd/12o, dated Dec 15, 1944. In German. 1.00

L 67188 Frames 2646-2647 — Testing fluids for fuel pumps. Ger. patent application I (rest missing) In German. 1.00

L 67189 Frames 2648-2649 — Luminescence reactions. Ger. patent application I 78674 IVa/57b, dated Dec 20, 1944. In German. 1.00

L 67190 Frames 2650-2663 — Production of anti-corrosive coatings on zinc and zinc alloys. Ger. patent application I 78680 VIa/48d, dated Dec 23, 1944. In German. 1.00

L 67103 Frame 2654 — Soap-free shaving agent. Ger. patent application I 78692 IVa/30h, dated Dec 27, 1944. In German. 1.00
May reproduce poorly.

L 67191 Frames 2655-2657 — Process for production of alumina and sulfur dioxide from aluminum sulfate containing water of crystallization. Ger. patent application I 78731 IVb/12m, dated Jan 9, 1945. In German. 1.00

L 67192 Frames 2658-2660 — Process for production of molded materials. Ger. patent application I 78733 IV/39b, dated Jan 11, 1945. In German. 1.00

L 67193 Frames 2661-2663 — Process for cleaning aluminum and aluminum alloy melts by treatment with chlorine. Ger. patent application I (rest missing) In German. 1.00

L 67194 Frames 2664-2665 — Process for production of alumina and sulfur dioxide from aluminum sulfate containing water of crystallization. Ger. patent application I (rest missing) In German. 1.00

L 67195 Frames 2666-2667 — Ion exchangers on synthetic-resin base. Ger. patent application I (rest missing) In German. 1.00

L 67196 Frames 2668-2669 — Process for production of molded ion exchangers on synthetic-resin base. Ger. patent application I (rest missing) In German. 1.00

L 67197 Frames 2670-2672 — Process for conversion of finely powdered polyvinyl chloride into a concentrated form. Ger. patent application I (rest missing) In German. 1.00

L 67198 Frames 2673-2678 — Production of sodium tripolyphosphate. Ger. patent application I (rest missing) In German. 1.00

L 67199 Frames 2679-2681 — Process for regeneration of hydroxyl ion exchange filters in desalting plants for sugar solutions. In German. 1.00

L 67036 — Patent applications of the Reich office, 1939-1945. (Index) 2.00

PB L 17673. I. G. FARBENINDUSTRIE A. G. Bayer files patent registration, I. G. Farbenindustrie main laboratory, Ludwigshafen. (FIAT Microfilm Reel C 76 (TOM 157), Frames 932-1303) Jan 1946. 371 f. Price: Microfilm-$4.50 - Enlargement print-$37.50
Individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $4.50. Please give the above PB number and the frame numbers when ordering individual items from this microfilm reel. In German.

Frames	Title	Price
932-952 PB L 17673	Fermentation of sulphite liquors. Ger. patent application I 61226 IVa/6b, Mar 1938-Sep 1939. In German.	$2.50
953-987 PB L 17673	Process for preparing synthetic resins. Ger. patent application I 61304 IVa/12o, Apr 1938-Aug 1941. In German.	5.00
988-1035 PB L 17673	Synthesis of adipic acid dinitrile. Ger. patent application I 62337 IVd/12o, Aug 1938-Jan 1941. In German.	6.00
1036-1099 PB L 17673	Preparation of water soluble dyestuffs. Ger. patent application I 62341 IVd/22a, Aug 1938-May 1943. In German.	5.50
1100-1113 PB L 17673	Synthesis of adipic acid dinitrile. Ger. patent application I 62498 IVd/12o, Sep 1938-May 1939. In German.	1.50
1114-1174 PB L 17673	Preparation of addition compounds of acetylene on acetone. Ger. patent application I 62932 IVd/12o, Nov 1938-Mar 1944. In German.	6.50
1175-1228 PB L 17673	Preparation of condensation products. Ger. patent application I 63045 IVd/12o, Nov 1938-May 1943. In German.	5.50
1229-1303 PB L 17673	Lacquers. Ger. patent application I 63115 IVc/22h, Nov 1938-Mar 1943. In German.	7.50

PB L 17675. I. G. FARBENINDUSTRIE A. G. Patent applications. (FIAT Microfilm Reel C 76 (TOM 159), Frames 2330-3409) 1939-1944. 1148 f. Price: Microfilm-$6.00 - Enlargement print-$115.00
This FIAT microfilm reel contains correspondence in connection with German patent applications in the field of organic chemistry, some of which were granted, some refused or withdrawn, and some were still pending. Applications for patents in other countries, including the U. S., are contained in some of the files. Individual items, listed below, will be available as enlargement prints. Please give PB and frame numbers when ordering one. In German and English.

PB Number Frames	Title	Price
L 65255 Frames 2330-2415	Preparation of alcohols of the acetylene series. Ger. patent application I 64231 IVd/12o, 1939-1944. In German and English.	$6.00
L 65256 Frames 2416-2499	Preparation of diolefins. Ger. patent application I 64311 IVd/12o, 1939-1942. In German and English.	6.00

L 65257 Frames 2500-2545 — Process for preparation of diolefins. Ger. patent application I 64312 IVd/12o, 1939-1944. In German. 4.00

L 65258 Frames 2546-2594 — Process for preparation of 1,4-dichlorobutane. Ger. patent application I 64519 IVd/12o, 1939-1942. In German and English. 4.00

L 65259 Frames 2595-2627 — Process for preparation of 1-chloro-4-hydroxytetrahydrofurane. Ger. patent application I 64748 IVc/12o, 1939-1943. In German. 3.00

L 65260 Frames 2628-2655 — Process for preparation of n-hexan-3-ol. Ger. patent application I 64893 IVc/12o, 1939-1941. In German. 2.00

L 65261 Frames 2656-2688 — Process for preparation of 2,5-dimethyl-3-hexine-2,5-diol. Ger. patent application I 64884 IVc/12o, 1939-1944. In German. 3.00

L 65262 Frames 2689-2717 — Process for preparation of ethers of 2,5-dihydroxy-2,5-dimethyl-1,4-dioxane. Ger. patent application I 64909 IVd/12o, 1939-1941. In German. 2.00

L 65263 Frames 2718-2738 — Process for preparation of tetrahydrofuran. Ger. patent 713 565. Application I 64889 IVc/12g, 1939-1941. In German. 2.00

L 65264 Frames 2739-2794 — Process for preparation of acrylethers, carbonic acids and their salts. Ger. patent 741 687. Application I 64971 IVc/12o, 1939-1943. In German. 4.00

L 65265 Frames 2795-2845 — Process for preparation of vat dyes of the dibenzanthrone series. Ger. patent 728 375. Application I 64957 IVd/22b, 1939-1942. In German and English. 4.00

L 65266 Frames 2846-2879 — Process for preparation of vat dyes of the isodibenzanthrone series. Ger. patent 730 535. Application I 64958 IVd/22b, 1939-1942. In German. 3.00

L 65267 Frames 2880-2927 — Process for preparation of vat dyes of the dibenzanthrone - and isodibenzanthrone series. Ger. patent 740 386. Application I 64961 IVd/22b, 1939-1943. In German. 4.00

L 65268 Frames 2928-2963 — Process for preparation of nitrogen-containing derivatives of tetrahydrofuran. Ger. patent application I 64959 IVc/12o, 1939-1943. In German. 3.00

L 65269 Frames 2964-2982 — Process for preparation of polyamines. Ger. patent application I 64994 IVc/12g, 1939-1940. In German. 2.00

L 65270 Frames 2983-3030 — Textile protecting agent. Ger. patent 706 680. Application I 65011 IVa/45 l, 1939-1941. In German. 4.00

L 65271 Frames 3031-3056 — Process for preparation of high molecular polyamines. Ger. patent application I 65057 IVc/12o, 1939-1940. In German. 2.00

L 65272 Frames 3057-3075 — Process for preparation of butadiene. Ger. patent application I 65080 IVd/12o, 1939-1940. In German. 2.00

L 65273 Frames 3076-3092 — Process for preparation of 1,4-dichlorobutane and 4,4'-dichlorobutyl-ether. Ger. patent application I 65187 IVd/12o, 1939-1940. In German. 2.00

L 65274 Frames 3093-3153 — Process for carrying out catalytic reactions. Ger. patent 734 881. Application I 65255 IVb/12g, 1939-1943. In German. 4.00

L 65275 Frames 3154-3227 — Process for preparation of products from formaldehyde, additional carbonyl compounds, ammonium salts and urea. Ger. patent 712 881. Application I 65315 IVc/39c, 1939-1942. In German. 4.00

L 65276 Frames 3228-3288 — Preparation of organic nitrogen-containing compounds with triple unsaturated carbon linkages. Ger. patent application I 65302 IVd/12o, 1939-1942. In German and English. 4.00

L 65277 Frames 3289-3304 — Process for preparation of 4,4'-dichlorodibutyl-ether. Ger. patent application I 65316 IVd/12o, 1939-1941. In German. 2.00

L 65278 Frames 3305-3339 — Process for preparation of polymerisation products. Ger. patent application I 65359 IVc/39c, 1939-1942. In German. 3.00

L 65279 Frames 3340-3409 — Process for preparation of acrylic acid and its substitution products. Ger. patent application I 65361 IVc/12o, 1939-1944. In German. 5.00

L 65254 — Reppe files - patent registration, I. G. Farbenindustrie A. G. main laboratory Ludwigshafen. Index. 1.00

PB L 17676. I. G. FARBENINDUSTRIE A. G. Reppe files - Patent applications, Main laboratory, Ludwigshafen. (FIAT Microfilm Reel C 79, Frames 3410-4895) n. d. 1561 f. Price: Microfilm-$6.00 - Enlargement print-$156.50

This FIAT microfilm reel consists of patent applications in the field of organic chemistry. Individual items are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give PB and frame numbers when ordering individual items from this microfilm form. In German.

PB Number Frames	Title	Price
L 69897 Frames 3410-3441	Preparation of piperidones and piperidines. Ger. patent application I 65360 IVc/12p, Jul 1939-Jul 1944. In German.	$3.00
L 69898 Frames 3442-3459	Adhesives. Ger. patent application Draft No. 347, Mar 1939-Aug 1939. In German.	2.00
L 69899 Frames 3460-3501	Process for spin-dyeing of cellulose esters and ethers. Ger. patent application I 65344 IVc/39b, Jun 1939-May 1943. In German.	3.00
L 69900 Frames 3502-3523	Preparation of aromatic vinyl compounds. Ger. patent application I 65405 IVd/12o, Jul 1939-Jun 1943. In German.	2.00
L 69901 Frames 3524-3533	Preparation of isobutylene. Ger. patent application I 65406 IVd/12o, Jul 1939-Aug 1940. In German.	1.00

L 69902 Frames 3534-3603 — Preparation of 1,4-dichlorobutane and 4,4'-dichlorodibutyl ether. Ger. patent application I 65410 IVd/12o. Jul 1939-Nov 1942. In German. 5.00

L 69903 Frames 3604-3610 — Process for marking of tracing cloth. Ger. patent application Draft(no. not given). Jun 1939-Feb 1940. In German. 1.00

L 69904 Frames 3611-3625 — Preparation of wetting agents. Ger. patent application I 65419 IVd/12o. Aug 1939-May 1940. In German. 1.00

L 69905 Frames 3626-3669 — Process for dissolving cellulose. Ger. patent application I 65441 IVc/29b. Jul 1939-Nov 1943. In German. 3.00

L 69906 Frames 3670-3708 — Preparation of amino-alkyl and aminoaryl-N-pyrrolidones. Ger. patent application I 65483 IVc/12p. Aug 1939-Dec 1942. In German. 3.00

L 69907 Frames 3709-3730 — Binding agents for paints, cements and putties. Ger. patent application I 65519 IVc/22g. Aug 1939-Nov 1942. In German. 2.00

L 69908 Frames 3731-3772 — Preparation of compounds of the ethylene series. Ger. patent application I 65571 IVd/12o. Jul 1939-Aug 1943. In German. 3.00

L 69909 Frames 3773-3794 — Preparation of acidic esters (of sulfuric acid) of compounds (with high molecular weight) containing hydroxyl groups. Ger. patent application I 65587 IVd/12o. n. d. In German. 2.00

L 69910 Frames 3795-3812 — Preparation of acidic esters (of sulfuric acid) of compounds (with high molecular weight) containing hydroxyl groups. Ger. patent application I 65588 IVd/12o. Sep 1939-Jan 1940. In German. 2.00

L 69911 Frames 3813-3855 — Preparation of condensation products. Ger. patent application I 65544 IVd/12o. Aug 1939-Feb 1941. In German. 3.00

L 69912 Frames 3856-3870 — Preparation of superpolyamides. Ger. patent application (no. not given). Aug 1939-Oct 1939. In German. 1.00

L 69913 Frames 3871-3888 — Preparation of N-vinylimidazoles. Ger. patent application I 65644 IVc/12p. Sep 1939-May 1941. In German. 1.00

L 69914 Frames 3889-3897 — Preparation of dinitriles. Ger. patent application I 65682 IVd/12o. Aug 1939-May 1940. In German. 1.00

L 69915 Frames 3898-3933 — Preparation of aldehydes. Ger. patent application I 65720 IVd/12o. Aug 1939-Jan 1942. In German. 3.00

L 69916 Frames 3934-3960 — Preparation of aminotriazo dyestuffs. Ger. patent application (no. not given). Aug 1939-Jun 1940. In German. 2.00

L 69917 Frames 3961-4032 — Preparing esters of acrylic acid and of its substitution products. Ger. patent application I 65757 IVd/12o. Sep 1939-Mar 1943. In German. 5.00

L 69918 Frames 4033-4087 — Preparation of unsaturated carboxylic acids and their esters. Ger. patent application I 65758 IVc/12o. Sep 1939-Jan 1942. In German. 4.00

L 69919 Frames 4088-4125 — Preparation of dye salts. Ger. patent application I 65766 IVd/22e. Sep 1939-Jul 1943. In German. 3.00

L 69920 Frames 4126-4153 — Preparation of compounds of borofluorids. Ger. patent application I 65789 IVc/12q. Aug 1938-Aug 1943. In German. 2.00

L 69921 Frames 4154-4184 — Preparation of nitrogenous products. Ger. patent application I 65866 IVc/12p. Oct 1939-Feb 1942. In German. 3.00

L 69922 Frames 4185-4221 — Preparation of organic sulfur compounds. Ger. patent application I 65851 IVd/12o. Oct 1939-Nov 1943. In German. 3.00

L 69923 Frames 4222-4233 — Preparation of polyethers. Ger. patent application I 65867 IVc/12o. Oct 1939-Feb 1943. In German. 1.00

L 69924 Frames 4234-4281 — Preparation of monoazo dyes. Ger. patent application I 65956 IVd/22a. Nov 1939-May 1944. In German. 4.00

L 69925 Frames 4282-4319 — Preparation of nickel carbonyl. Ger. patent application I 66040 IVb/12m. Oct 1939-Jun 1944. In German. 3.00

L 69926 Frames 4320-4392 — Preparation of organic sulfuric acid derivatives. Ger. patent application I 66084 IVd/12o. Nov 1939-Nov 1943. In German. 5.00

L 69927 Frames 4393-4487 — Preparation of organic sulfuric acid derivatives. Ger. patent application I 66146 IVd/12o. Sep 1939-Nov 1943. In German. 7.00

L 69928 Frames 4488-4527 — Preparation of succinic acid. Ger. patent application I 66156 IVd/12o. Nov 1939-Jan 1943. In German. 3.00

L 69929 Frames 4528-4553 — Preparation of N-substitution products of 2-amino-1,3-butadiene. Ger. patent application I 66176 IVd/12o. Nov 1939-Mar 1942. In German. 2.00

L 69930 Frames 4554-4595 — Preparation of nitrogenous derivatives of acrylic acid and of its substitution products. Ger. patent I 66167 IVc/12o. Dec 1939-May 1942. In German. 3.00

L 69931 Frames 4596-4667 — Process for improving the heat stability of high-polymeric halogen-containing substances. Ger. patent application I 66224 IVc/39b. Nov 1939-Aug 1943. In German. 5.00

L 69932 Frames 4668-4686 — Process for improving the heat-stability of high-polymeric halogen-containing substances. Ger. patent application I 66223 IVc/39b. Dec 1939-Dec 1943. In German. 2.00

L 69933 Frames 4687-4725 — Preparation of cobalt or iron carbonyl. Ger. patent application I 66238 IVb/12m. Dec 1939-Nov 1944. In German. 3.00

L 69934 Frames — Preparation of acrylic acid and its substitution products or

4726-4758	their esters. Ger. patent application I 66282 IVe/12o, Dec 1939-Jan 1943. In German.	2.00
L 86954 Frames 4759-4792	Preparation of substituted acrylic acids and their esters. Ger. patent application I 66373 IVc/12o, Jan 1940-Jun 1942. In German.	5.00
L 69935 Frames 4793-4808	Preparation of primary amines. Ger. patent application I 66399 IVa/12q, Oct 1939-Nov 1943. In German.	2.00
L 69936 Frames 4809-4830	Preparation of derivatives of 1,4-diaminoanthraquinone. Ger. patent application I 66410 IVd/22b, Feb 1940-Apr 1944. In German.	2.00
L 69937 Frames 4831-4895	Preparation of unsaturated thio acids and their esters. Ger. patent application I 60487 IVc/12o, Dec 1939-Aug 1944. In German.	5.00
L 69896	Patent applications (Index).	1.00

PB L 84163. REICHSPATENTAMT, BERLIN. German patents: Class 12d; Groups 1, 2, 3, 5. Chemical processes and apparatus. (FIAT Microfilm Reel BB 70, Frames 5152-6214) 1880-1940. 1063 f. Price: Microfilm-$7.00 - Enlargement print-$108.00

This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 312 patents in Class 12d, Groups 1, 2, 3 and 5, Chemical processes and apparatus. Clarifying and separating fluids, filtration plants in which solid filter material is used, filtration plants in which loose filter material is used, and filter presses in general are included. In German.

PB L 84163-S. REICHSPATENTAMT, BERLIN. German patents. Class 12d; Groups 1, 2, 3, and 5, Chemical processes and apparatus. (FIAT Microfilm Reel BB 70, Frames 5152-6214, abstract cards) 1880-1940. 312 p. Price: Microfilm-$7.00 - Photostat-$32.00

These are abstract cards for the above FIAT microfilm reel BB 70, PB 84163, prepared by FIAT personnel in Germany. Each abstract card gives the German title with English translation, patent number, classification, date, patentee and inventor.

PB L 70316. REICHSPATENTAMT, BERLIN. German patents: Class 12i, o and p; Groups 1, 4 and 27. General organic chemical processes. (FIAT Microfilm Reel BB 82, Frames 1663-2845) 1881-1943. 1182 f. Price: Microfilm-$6.00 - Enlargement print-$118.50

This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 510 patents in Class 12i, o and p; Groups 1, 4 and 27, reductions, oxidations and hydrations; production of rare gases; pyridines, quinolines and derivatives; and production of thiazol-derivatives. General chemical processes of organic chemistry; preparation of nitric acid from nitrates, distillation, concentration, condensation, purification and reextraction; six-membered carbon-nitrogen rings with one nitrogen atom; and sulfur-nitrogen rings are included. In German.

PB L 70316-S. REICHSPATENTAMT, BERLIN. German patents: Class 12i, o and p; Groups 1, 4 and 27. General organic chemical processes. (FIAT Microfilm Reel BB 82, Frames 1663-2845, abstract cards) 1881-1943. 510 p. Price: Microfilm-$11.00 - Photostat-$34.00

These are abstract cards for the above FIAT microfilm reel BB 82, PB L 70316, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 84169. REICHSPATENTAMT, BERLIN. German patents: Class 12i; Groups 16, 17, 19, 20, 23. Metalloids and their compounds. (FIAT Microfilm Reel CC 92, Frames 5810-6769) 1877-1940. 960 f. Price: Microfilm-$7.00 - Enlargement print-$97.00

This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 382 patents in Class 12i, Groups 16, 17, 19, 20 and 23, Metalloids and their compounds. Hydrogen peroxide, sulfur and selenium, sulphides from sulphates by reduction, chlorine containing sulfur compounds, and concentration of sulfuric acid are included. In German.

PB L 84169-S. REICHSPATENTAMT, BERLIN. German patents: Class 12i; Groups 16, 17, 19, 20, 23. Metalloids and their compounds. (FIAT Microfilm Reel CC 92, Frames 5810-6769, abstract cards) 1877-1940. 382 p. Price: Microfilm-$7.00 - Photostat-$39.00

These are abstract cards for the above FIAT microfilm reel CC 92, PB L 84169, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 70318. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 2, 3, 5 and 6, Nitrogen ring and nitrogenous compounds. (FIAT Microfilm Reel BB 84, Frames 4013-5139) 1885-1941. 1126 f. Price: Microfilm-$6.00 - Enlargement print-$113.00

This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 532 patents in Class 12p, Groups 2, 3, 5 and 6, Nitrogen ring and nitrogenous compounds. Heterocyclic compounds: oxygen nitrogen ring compounds, nitrogen ring compounds with an N atom, and production of piperazines are included. In German.

PB L 70318-S. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 2, 3, 5 and 6, Nitrogen ring and nitrogenous compounds. (FIAT Microfilm Reel BB 84, Frames 4013-5139, abstract cards) 1885-1941. 532 p. Price: Microfilm-$11.00 - Photostat-$36.00

These are abstract cards for the above FIAT microfilm reel BB 84, PB L 70318, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 70319. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 7 and 8, Pyrimidine derivatives and pyrazolones. (FIAT Microfilm Reel BB 85, Frames 5140-6232) 1883-1941. 1092 f. Price: Microfilm-$6.00 - Enlargement print-$109.50

This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 547 patents in Class 12p, Groups 7 and 8, Pyrimidine derivatives and pyrazolones. Derivatives of purine and pyrazole are included. The patents are dated between 1883 and 1941. In German.

PB L 70319-S. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 7 and 8, Pyrimidine derivatives and pyrazolones. (FIAT Microfilm Reel BB 85, Frames 5140-6232, abstract cards) 1883-1941. 547 p. Price: Microfilm-$11.00 - Photostat-$37.00

These are abstract cards for the above FIAT microfilm reel BB 85, PB 70319, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 70320. REICHSPATENTAMT, BERLIN. German patents: Class 12p; Groups 9, 10, 11, 12 and 13. Nitrogen ring compounds; alkaloids. (FIAT Microfilm Reel BB 86, Frames

Patents - Chemicals (contd)

6233-7427) 1885-1941. 1194 f. Price: Microfilm-$6.00 - Enlargement print-$119.50
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 526 patents in Class 12p, Groups 9, 10, 11, 12 and 13: Imidazolines, production of azo-compounds, quinine alkaloids and derivatives, and production of other alkaloids and derivatives. Imidazoles and thiobiazoles, heterocyclic compounds with two or more ringed nitrogen atoms, cinchona alkaloids, and solanaceas alkaloids are included. In German.

PB L 70320-S. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 9, 10, 11, 12 and 13. Nitrogen ring compounds; alkaloids. (FIAT Microfilm Reel BB 86, Frames 6233-7427, abstract cards) 1885-1941. 526 p.
Price: Microfilm-$11.00 - Photostat-$36.00
These are abstract cards for the above FIAT microfilm reel BB 86, PB L 70320, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 70322. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 14, 15, 16 and 17: Alkaloids and albuminous substances. (FIAT Microfilm Reel BB 87, Frames 7428-8640) 1878-1940. 1213 f. Price: Microfilm-$6.00 - Enlargement print-$121.50
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 573 patents in Class 12p, Groups 14, 15, 16, and 17, opium alkaloids and derivatives, phenols, hexamethylenetetramine and derivatives; albuminous substances and compounds; and production of steroides (hormones). In German.

PB L 70322-S. REICHSPATENTAMT, BERLIN. German patents: Class 12p, Groups 14, 15, 16 and 17: Alkaloids and albuminous substances. (FIAT Microfilm Reel BB 87, Frames 7428-8640, abstract cards) 1878-1940. 573 p.
Price: Microfilm-$12.00 - Photostat-$39.00
These are abstract cards for the above FIAT microfilm reel BB 87, PB L 70322, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

PB L 84122. REICHSPATENTAMT, BERLIN. German patents: Class 8d; Groups 20 and 21. Laundering, including finishing and flatirons. (FIAT Microfilm Reel CC 66, Frames 1675-2491) 1877-1940. 817 f. Price: Microfilm-$7.00 - Enlargement print-$83.00
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 208 patents in Class 8d, Groups 20 and 21: Laundry, including finishing. Ironing machines for clothes, folding machines, sadirons and appurtenances are included. In German.

PB L 84122-S. REICHSPATENTAMT, BERLIN. German patents: Class 8d; Group 20 and 21. Laundering, including finishing and flatirons. (FIAT Microfilm Reel CC 66, Frames 1675-2491, abstract cards) 1877-1940. 208 p.
Price: Microfilm-$6.00 - Photostat-$21.00
These are abstract cards for the above FIAT microfilm reel CC 66, PB 84122, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 84127. REICHSPATENTAMT, BERLIN. German patents: Class 8d, Groups 20,4. Laundry equipment. (FIAT Microfilm Reel CC 64, Frames 1-818) 1881-1941. 818 f.
Price: Microfilm-$7.00 - Enlargement print-$83.00
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 167 patents in Class 8d, Groups 20,4, laundry machinery. Finishing machinery, ironing machines, folding machines and washing machines with rollers are included. The patents are dated between 1881 and 1941. In German.

PB L 84127-S. REICHSPATENTAMT, BERLIN. German patents: Class 8d, Groups 20,4. Laundry equipment. (FIAT Microfilm Reel CC 67, Frames 1-818, abstract cards) 1881-1941. 167 p. Price: Microfilm-$5.00 - Photostat-$17.00
These are abstract cards for the above FIAT microfilm reel CC 64, PB 84127, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 84151. REICHSPATENTAMT, BERLIN. German patent: Class 8d, Group 21. Flat irons. (FIAT Microfilm Reel CC 67, Frames 2492-3261) 1880-1940. 770 f. Price: Microfilm-$7.00 - Enlargement print-$79.00
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 191 patents in Class 8d, Group 21, flat irons. Heating elements, handles, rests and wire cables as well as various types of irons are included. The patents are dated between 1880 and 1940. In German.

PB L 84151-S. REICHSPATENTAMT, BERLIN. German patents: Class 8d, Group 21. (FIAT Microfilm Reel CC 67, Frames 2492-3261, abstract cards) 1880-1940. 191 p.
Price: Microfilm-$5.75 - Photostat-$20.00
These are abstract cards for the above FIAT microfilm Reel, CC 67, PB 84151, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

METALS AND METAL PRODUCTS

PB L 87339. KNURGER, FRIEDRICH and KOOSMANN, WILLIAM. The process for the degassing of melts. (NAVSHIPS Translation Series 14) Dec 1941. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00
This document is a translation of German patent 604 486 (Class 40a, Group 1501), applied for April 15, 1931 and issued October 22, 1934. The patent concerns a process for degassing of melts, especially of metallic, glass or quartz melts and of other liquid materials especially of liquified gases, oils or resins characterized in that ultrasonic vibrations are conducted into the melt or liquid. Figures mentioned in the description are not included.

TEXTILES AND TEXTILE PRODUCTS

PB L 84134. REICHSPATENTAMT, BERLIN. German patents: Class 8f, Groups 5, 6, 7, 8, 9, 10, 11, 12 and 13. Textile finishing machines. (FIAT Microfilm Reel CC 73, Frames 7421-8464) 1881-1941. 1044 f. Price: Microfilm-$7.00 - Enlargement print-$106.00
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 302 patents in Class 8f, Groups 5, 6, 7, 8, 9, 10, 11, 12 and 13: Textile finishing machines. Textile plaiting, doubling, winding, transverse and diagonal cutting, longitudinal cutting, trimming, sample cutting, wall-paper cutting and packing machines are included. In German.

PB L 84134-S. REICHSPATENTAMT, BERLIN. German patents: Class 8f, Groups 5, 6, 7, 8, 9, 10, 11, 12 and 13, Textile finishing machines. (FIAT Microfilm Reel CC 73, Frames 7421-8484, abstract cards) 1881-1941. 302 p. Price: Microfilm-$7.00 - Photostat-$31.00
These are abstract cards for the above FIAT microfilm reel CC 73, PB L 84134, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

PB L 84144. REICHSPATENTAMT, BERLIN. German patents: Class 8d: Groups 14, 15, 16, 20, 21, Finishing and ornamenting yarn, textile webs, knit goods, etc. (FIAT Microfilm Reel BB 51, Frames 1569-2275) 1878-1941. 707 f.
Price: Microfilm-$7.00 - Enlargement print-$72.00
This microfilm reel, prepared by FIAT in Germany from the files of the German Patent Office, contains 173 patents in Class 8b, Groups 14, 15, 16, 20 and 21: Finishing and ornamenting yarn, textile webs, knit goods, etc. Shearing textile webs and yarns, brushing and beating fabrics for finishing, singeing textile webs and yarns, rolls for callenders, etc., and mangles for textile web are included. The patents are dated between 1878 and 1941. In German.

PB L 84144-S. REICHSPATENTAMT, BERLIN. German patents: Class 8d: Groups 14, 15, 16, 20, 21, Finishing and ornamenting yarn, textile webs, knit goods, etc. (FIAT Microfilm Reel BB 51, Frames 1569-2275, abstract cards) 1878-1941. 173 p. Price: Microfilm-$5.25 - Photostat-$18.00
These are abstract cards for the above FIAT microfilm reel BB 51, PB L 84144, prepared by FIAT personnel in Germany. Each abstract card gives the German title with English translation, patent number, classification, date, patentee and inventor.

MISCELLANEOUS

PB L 20522. I. G. FARBENINDUSTRIE A. G., WOLFEN, GERMANY. Patent applications of the Wolfen office, 1937-1942. (FIAT Microfilm Reel Patents 152, Frames 1-1025) 1937-1942. 1025 f. Price: Microfilm-$6.00 - Enlargement print-$102.50
335 individual items of this FIAT microfilm reel are listed below. They will be available as enlargement prints only; the entire reel may be purchased in microfilm form for $6.00. Please give PB and frame numbers when ordering individual items from this microfilm reel. In German.

PB Number / Frames	Title	Price
L 61602 Frames I-CIV	List of confidential patent applications. In German.	$5.00
L 61832 Frames 1-5	Production of beryllium-containing alloys by a thermal method. Ger. patent application I 64766 VI/40b, dated Jun 5, 1939. In German.	1.00
L 61831 Frames 6-17	Preparation of a fertilizer. Ger. patent application I 64770 IVb/16, dated Jun 5, 1939. In German.	1.00
L 61830 Frames 18-19	Delustering and finishing agent for textiles. Ger. patent application I 64773 IVd/8k, dated Jun 6, 1939. In German.	1.00
L 61829 Frames 20-23	Improvement of insulating properties overhead line insulators. Ger. patent application I 64822 VIIIb/21c, dated Jun 12, 1939. In German.	1.00
L 61828 Frames 24-26	Production of water-soluble condensation products. Ger. patent application I 64879 IVd/12o, dated Jun 16, 1939. In German.	1.00
L 61827 Frames 27-32	Drying apparatus. Ger. patent application I 64975 V/82a, dated Jun 27, 1939. In German.	1.00
L 61826 Frames 33-42	Continuous chlorination of benzene. Ger. patent application I 65035 IVd/12a, dated Jul 1, 1939. In German.	1.00
L 61825 Frames 43-45	Method for protecting fibrous fabrics. Ger. patent application I 65036 IVd/8k, dated Jul 1, 1939. In German.	1.00
L 61822 Frames 46-49	Switches for signalling installations. Ger. patent application I 65038 VIIIb/21c, dated Jul 4, 1939. In German.	1.00
L 61823 Frames 50-51	Production of 2-hydroxy-6-aminonaphthalene. Ger. patent application I 65054 IVc/12gn, dated Jul 4, 1939. In German.	1.00
L 61824 Frames 52-56	Pest control agents. Ger. patent application I 65067 IVa/45 1, dated Jul 7, 1939. In German.	1.00
L 61821 Frames 57-62	Production of adhesive platings of aluminum or aluminum-alloy for magnesium of magnesium alloy articles. Ger. patent application I 65061 VI/48b, dated Jul 7, 1939. In German.	1.00
L 61820 Frames 63-69	Production of protective coatings of aluminum or alloys thereof for objects of magnesium or magnesium alloys. Ger. patent application I 65062 VI/48b, dated Jul 7, 1939. In German.	1.00
L 61819 Frames 70-73	Agent for preventing aging of rubber and similar material. Ger. patent application I 65095 IVc/39b, dated Jul 10, 1939. In German.	1.00
L 61818 Frames 74-76	Production of protein yeast. Ger. patent application I 65151 IVa/6a, Jul 15, 1939. In German.	1.00
L 61817 Frames 77-86	Coloring of magnesium and magnesium alloys. Ger. patent application I 65153 VI/48e, dated Jul 15, 1939. In German.	1.00
L 61816 Frames 87-89	Production of purified lignin sulfonic acid preparations. Ger. patent application I 65186 IVe/12a, dated Jul. 18, 1939. In German.	1.00
L 61815 Frames 90-94	Process for extraction of small quantities of fluorine from oxidic beryllium compounds. Ger. patent application I 65463 IV 1/12m, dated Aug 17, 1939. In German.	1.00
L 61814 Frames 95-100	Production of azo dyes. Ger. patent application I 65506 IVe/22a, dated Aug 24, 1939. In German.	1.00
L 61813 Frames 101-104	Prevention of corrosion of metal parts in pipings conveying water containing emulsified oils. Ger. patent application I 65607 IVb/85b, dated Sep 13, 1939. In German.	1.00
L 61812 Frames 105-113	Process for quenching alkaline earth oxides, particularly quick lime. Ger. patent application I 65608 VI/80b, dated Sep 13, 1939. In German.	1.00

L 61811 Frames 114-117 — **Insecticides.** Ger. patent application I 65628 IVa/45 L, dated Sep 14, 1939. In German. 1.00

L 61810 Frames 118-123 — **Process for improving the tensile strength and the resistance to intercrystalline and stress corrosion of aluminum alloys.** Ger. patent application I 65655 VI/40d, dated Sep 21, 1939. In German. 1.00

L 61809 Frames 124-126 — **Fire-extinguishing liquid.** Ger. patent application I 64827 IVb/61b, dated Jun 12, 1939. In German. 1.00

L 61808 Frames 127-132 — **Production of sulfur dyestuffs.** Ger. patent application I 65727 IVd/22d, dated Sep 3, 1939. In German. 1.00

L 61807* Frames 133-136 — **Process for production of a detergent similar to soft soap.** Ger. patent application I 65804 IVd/61, dated Sep 14, 1939. In German. 1.00

L 61806 Frames 137-144 — **Process for determining the composition of gases with the aid of a Wheatstone bridge.** Ger. patent apolication I 65808 IXb/42 1, dated Sep 17, 1939. In German. 1.00

L 61805 Frames 145-148 — **Horticultural and viticultural fungicides.** Ger. patent apolication I 65815 IVa/45 1, dated Sep 18, 1939. In German. 1.00

L 61804 Frames 149-152 — **New perfume mixtures.** Ger. patent application I 65871 IVa/23a, dated Sep 28, 1939. In German. 1.00

L 61803 Frames 153-156 — **Perfume mixtures.** Ger. pat nt application I 65872 IVa/23a, dated Sep 28, 1939. In German. 1.00

L 61802 Frames 157-160 — **Process and apparatus for neutralizing chemical warfare agents.** Ger. patent application I 65718 IVb/61b, dated Sep 30, 1939. In German. 1.00

L 61801 Frames 161-168 — **Rectification column.** Ger. patent apolication I 65902 IVa/12a, dated Nov 2, 1939. In German. 1.00

L 61800 Frames 169-172 — **Process for coloring organic solvents, oils, fats, waxes, etc.** Ger. patent application I 65924 IVc/22h, dated Nov 6, 1939. In German. 1.00

L 61799 Frames 173-178 — **Production of anhydrous sodium ortho- and pyro-silicate.** Ger. patent application I 65958 IVb/12i, dated Nov 11, 1939. In German. 1.00

L 61798 Frames 179-181 — **Control of nematodes.** Ger. patent application I 65974 IVa/45 1, dated Nov 18, 1939. In German. 1.00

L 61797 Frames 182-186 — **Binding agents.** Ger. patent application I 66065 VI/40b, dated Dec 2, 1939. In German. 1.00

L 61796 Frames 187-193 — **Extrusion molding press for the production of pipes and tubular objects from light-metal alloys.** Ger. patent application I 66133 VI/31c, dated Dec 14, 1939. In German. 1.00

L 61795 Frames 194-198 — **Pressure-driven casting apparatus.** Ger. patent application I 66100 VI/31c, dated Dec 9, 1939. In German. 1.00

L 61794 Frames 199-203 — **Process for after-chlorination of polyvinylchlorides.** Ger. patent application I 65807 IVc/39b, dated Oct 16, 1939. In German. 1.00

L 61793 Frames 204-209 — **Process for producing protective layers on light metal pieces by anodic treatment.** Ger. patent application I 66267 VI/48a, dated Jan 9, 1940. In German. 1.00

L 61792 Frames 210-214 — **Apparatus for continuous production of protective layers on light metal pieces by anodic treatment.** Ger. patent application I 66266 VI/48a, dated Jan 9, 1940. In German. 1.00

L 61791 Frames 215-217 — **Process for production of protective layers on light-metal and light-metal alloy pieces by anodic treatment.** Ger. patent application I 66264 VI/48a, dated Jan 9, 1940. In German. 1.00

L 61790 Frames 218-220 — **Process for production of protective layers on light-metal and light-metal alloy pieces by anodic treatment.** Ger. patent application I 66265 VI/48a, dated Jan 9, 1940. In German. 1.00

L 61789 Frames 221-223 — **Packing.** Ger. patent application I 65170 XII/47f, dated Jul 19, 1939. In German. 1.00

L 61788 Frames 224-230 — **Catalytic furnace.** Ger. patent application I 66411 V/24c, dated Jan 1, 1940. In German. 1.00

L 61787 Frames 231-233 — **Textile plasticizers.** Ger. patent application I 66440 IVc/8k, dated Feb 3, 1940. In German. 1.00

L 61786 Frames 234-236 — **Process for improving the grease-resistance of natural and regenerated cellulose.** Ger. patent application I 66421 IVd/8k, dated Feb 3, 1940. In German. 1.00

L 61785 Frames 237-240 — **Process for rearrangement of azo-naphthalenes.** Ger. patent application I 66755 IVc/39b, dated Mar 23, 1940. In German. 1.00

L 61784 Frames 241-243 — **Solvents, softeners, and gelatinizers for cellulose derivatives.** Ger. patent application I 66741 IVc/39b, dated Mar 23, 1940. In German. 1.00

L 61783 Frames 244-247 — **Process for surface treatment of magnesium alloys, particularly of cast or molded objects thereof.** Ger. patent application I 66830 VI/48d, dated Apr 9, 1940. In German. 1.00

L 61782 Frames 248-251 — **Insecticides.** Ger. patent application I 66841 IVa/45 1, dated Mar 13, 1940. In German. 1.00

L 61781 Frames 252-255 — **Textile auxiliaries.** Ger. patent application I 66842 IVd/8k, dated Mar 13, 1940. In German. 1.00

L 61780 Frames 256-262 — **Production of cutting tools.** Ger. patent application I 66876 Ib/49h, dated Mar 17, 1940. In German. 1.00

L 61779 Frames 263-265 — **Fungicides for living plants.** Ger. patent application I 67046 IVa/45 1, dated May 20, 1940. In German. 1.00

L 61778 Frames 266-268 — **Process for production of vinyl chloride.** Ger. patent application I 67083 IVd/12a, dated May 25, 1940. In German. 1.00

L 61777 Frames 269-271 — Soaps. Ger. patent application I 67140 IVa/30h, dated Jun 5, 1940. In German. 1.00

L 61776 Frames 272-275 — Improvement of the corrosion-resistance of magnesium and its alloys. Ger. patent application I 67178 VI/48d, dated Jun 10, 1940. In German. 1.00

L 61775 Frames 276-280 — Graphite cathode treatment in the electrolytic dissociation of hydrochloric acid. Ger. patent application I 67285 IVb/121, dated Jun 12, 1940. In German. 1.00

L 61774 Frames 281-283 — Process for increasing the compactness of synthetic fibrous fabrics. Ger. patent application I 67244 IVa/8k, dated Jun 21, 1940. In German. 1.00

L 61773 Frames 284-287 — Process for production of fluorine-free beryllium chloride. Ger. patent application I 67284 IVb/12m, dated Jun 27, 1940. In German. 1.00

L 61772 Frames 288-296 — Process for preparing magnesium bicarbonate solution. Ger. patent application I 67285 IVb/12m, dated Jun 27, 1940. In German. 1.00

L 61771 Frames 297-300 — Conversion of ammonium nitrate into a form safe for keeping and handling. Ger. patent application I 57639 IVb/121, dated Apr 6, 1937. In German. 1.00

L 61770 Frames 301-303 — Process for production of sebacic acid. Ger. patent application I 67392 IVd/12o, dated Jul 8, 1940. In German. 1.00

L 61769 Frames 304-307 — Drying process. Ger. patent application I 67380 V/82a, dated Jul 12, 1940. In German. 1.00

L 61768 Frames 308-310 — Toilet soaps. Ger. patent application I 67422 IVa/30h, dated Jul 12, 1940. In German. 1.00

L 61767 Frames 311-314 — Process for production of terpene hydrate. Ger. patent application I 67435 IVc/12o, dated Jul 16, 1940. In German. 1.00

L 61766 Frames 315-316 — Process for producing compact textile fabrics of synthetic fibers. Ger. patent application I 67412 IVc/8k, dated Jul 15, 1940. In German. 1.00

L 61765 Frames 317-322 — Process for concentration of sulfuric acid. Ger. patent application I 67495 IVb/121, dated Jul 18, 1940. In German. 1.00

L 61764 Frames 323-325 — Process for production of molded ceramic objects. Ger. patent application I 67479 VI/80b, dated Jul 22, 1940. In German. 1.00

L 61763 Frames 326-328 — Process for the drying of gases from ammonia combustion. Ger. patent application I 67539 IVb/12n, dated Jul 24, 1940. In German. 1.00

L 61762 Frames 329-332 — Kneaded aluminum alloys capable of being improved. Ger. patent application I 67487 VI/40b, dated Jul 26, 1940. In German. 1.00

L 61761 Frames 333-335 — Process for producing patterns of polyvinyl chloride sheet for the clothing industry. Ger. patent application I 67522 VII/3b, dated Jul 29, 1940. In German. 1.00

L 61760 Frames 336-337A — Process for production of a detergent similar to soft soap. Ger. patent application I 67571 IVd/81, dated Jul 2, 1940. In German. 1.00

L 61759 Frames 338-341 — Process for production of decacyclene. Ger. patent I 67767 IVc/12a, dated Jul 29, 1940. In German. 1.00

L 61758 Frames 342-344 — Process for production of a detergent similar to soft soap. Ger. patent application I 67733 IVb/23a, dated Jul 28, 1940. In German. 1.00

L 61757 Frames 345-350 — Scrubbing brushes for cleaning carts and motor vehicles. Ger. patent application I 67726 II/63c, dated Aug 29, 1940. In German. 1.00

L 61756 Frames 351-352 — Soft soap. Ger. patent application I 67734 IVa/23a, dated Aug 29, 1940. In German. 1.00

L 61755 Frames 353-357 — Apparatus for carrying out continuous reactions. Ger. patent application I 67271 IVb/12g, dated Jun 29, 1940. In German. 1.00

L 61754 Frames 358-363 — Cold step back welding of tubes and rods with the aid of a conical mandrel and a corresponding roller. Ger. patent application I 67780 Ib/7a, dated Sep 4, 1940. In German. 1.00

L 61753 Frames 364-366 — Process for production of putties and fillers. Ger. patent application I 67763 IVd/22i, dated Sep 5, 1940. In German. 1.00

L 61752 Frames 367-371 — Process for improving synthetic detergents. Ger. patent application I 67762 IVd/81, dated Sep 5, 1940. In German. 1.00

L 61751 Frames 372-374 — Solvents, softeners, and gelatinizers for polyvinyl compounds. Ger. patent application I 67811 IVc/39b, dated Sep 9, 1940. In German. 1.00

L 61750 Frames 375-384 — Apparatus for registering the movements of floats in liquid columns with the aid of light barriers. Ger. patent application I 67860 IVb/42d, dated Sep 18, 1940. In German. 1.00

L 61749 Frames 385-389 — Apparatus for removing constant quantities of liquid from containers with varying liquid levels. Ger. patent application I 67819 XII/47g, dated Sep 11, 1940. In German. 1.00

L 61748 Frames 390-396 — Tanning process. Ger. patent application I 67826 IVa/28a, dated Sep 12, 1940. In German. 1.00

L 61747 Frames 397-401 — Use of magnesium alloys for making slide bearings. Ger. patent application I 67843 VI/40b, dated Sep 14, 1940. In German. 1.00

L 61746 Frames 402-405 — Hair dyes. Ger. patent application I 67928 IVa/30h, dated Sep 28, 1940. In German. 1.00

L 61745 Frames 406-407 — Process for making cosmetics. Ger. patent application I 67927 IVa/30h, dated Sep 28, 1940. In German. 1.00

L 61744 — Storable powders for thawing of

Frames 408-411 — **glass.** Ger. patent I 67965 IVc/22g, dated Oct 8, 1940. In German. 1.00

L 61743 Frames 412-414 — **Method for spectroanalytical examination of liquids.** Ger. patent application I 67980 IIa/42h, dated Oct 7, 1940. In German. 1.00

L 61742 Frames 415-417 — **Process for production of textile aids.** Ger. patent application I 67986 IVd/12a, dated Oct 8, 1940. In German. 1.00

L 61741 Frames 418-422 — **Process for joint oxidation of aldehydes and olefins.** Ger. patent application I 68030 IVd/12a, dated Oct 14, 1940. In German. 1.00

L 61740 Frames 423-429 — **Sintering process.** Ger. patent application I 68057 VI/40a, dated Oct 19, 1940. In German. 1.00

L 61739 Frames 430-435 — **Testing process for revealing bubbles and similar faults in light-metal alloy castings, particularly in magnesium alloys.** Ger. patent application I 68176 IIb/42k, dated Nov 6, 1940. In German. 1.00

L 61738 Frames 436-439 — **Insecticides.** Ger. patent application I 68229 IVb/45 1, dated Nov 14, 1940. In German. 1.00

L 61737 Frames 440-442 — **Production of contacts between metallic electrical leads and carbon electrodes.** Ger. patent application A 92340 VIIIc/21h, dated Nov 14, 1940. In German. 1.00

L 61736 Frames 443-445 — **Process for extraction of Vanillin sodium from sulfite spent liquor which is decomposed through alkali.** Ger. patent application I 68243 IVd/12o, dated Nov 16, 1940. In German. 1.00

L 61735 Frames 446-451 — **Process for the improvement of corrosion resistance of magnesium and magnesium alloys.** Ger. patent application I 68250 VI/48d, dated Nov 19, 1940. In German. 1.00

L 61734 Frames 452-455 — **Process for production of manganese oxides amorphous under X-ray examination.** Ger. patent application I 68299 IVb/12n, dated Nov 23, 1940. In German. 1.00

L 61733 Frames 456-458 — **Solvents, softeners, and gelatinizers.** Ger. patent application I 68344 IVc/39b, dated Nov 29, 1940. In German. 1.00

L 61732 Frames 459-464 — **Removal of impurities from gases by catalytic combustion.** Ger. patent application I 68489 IVb/12n, dated Feb 13, 1940. In German. 1.00

L 61731 Frames 465-468 — **Aluminum alloys.** Ger. patent application I 68489 IVb/12n, dated Feb 13, 1940. In German. 1.00

L 61730 Frames 469-473 — **Process for extracting gas from aluminum and aluminum alloys.** Ger. patent application I 66796 VI/40a, dated Apr 4, 1940. In German. 1.00

L 61729 Frames 474-477 — **Casting apparatus for cast molds, particularly for semi-permanent molds.** Ger. patent application I 66954 VI/31c, dated May 3, 1940. In German. 1.00

L 61728 Frames 478-493 — **Process for production of stable crelid acetals.** Ger. patent application I 68418 IVd/12a, dated Dec 6, 1940. In German. 1.00

L 61727 Frames 494-496 — **Process for production of a synthetic material by after chlorination of polyvinyl chloride.** Ger. patent application I 68436 IVc/39c, dated Dec 10, 1940. In German. 1.00

L 61726 Frames 497-504 — **Process for continuous sulfohalogenation of hydrocarbons.** Ger. patent application I 68455 IVd/12a, dated Dec 13, 1940. In German. 1.00

L 61725 Frames 505-508 — **Process for production of pressed masses.** Ger. patent application I 68456 IVc/39c, dated Dec 14, 1940. In German. 1.00

L 61724 Frames 509-511 — **Process for production of pressed masses.** Ger. patent application I 68506 IVc/39c, dated Dec 20, 1940. In German. 1.00

L 61723 Frames 512-515 — **Process for production of polymeric condensation products.** Ger. patent application I 68532 IVc/39c, dated Dec 24, 1940. In German. 1.00

L 61722 Frames 516-522 — **Process for avoidance of subterranean formations when soaking ion-exchanging gels in water.** Ger. patent application I 68553 IVc/39c, dated Dec 31, 1940. In German. 1.00

L 61721 Frames 523-526 — **Process for enhancing the capacity of ion exchangers.** Ger. patent application I 68583 IVc/39c, dated Dec 31, 1940. In German. 1.00

L 61720 Frames 527-531 — **Process for increasing the ventilation-stability of organic cation exchangers.** Ger. patent application I 68554 IVc/39c, dated Dec 31, 1940. In German. 1.00

L 61719 Frames 532-535 — **Pickling solutions for surface treatment of magnesium alloy pieces.** Ger. patent application I 68564 VI/48d, dated Dec 31, 1940. In German. 1.00

L 61718 Frames 536-538 — **Process for surface treatment of magnesium-aluminum alloy pieces.** Ger. patent application I 67968 VI/40d, dated Oct 7, 1940. In German. 1.00

L 61717 Frames 539-542 — **Process for production of a flocculation agent for water purification.** Ger. patent application I 68643 IVb/85b, dated Jan 13, 1941. In German. 1.00

L 61716 Frames 543-551 — **Reaction of fluids with gases.** Ger. patent application I 68671 IVb/12e, dated Jan 17, 1941. In German. 1.00

L 86963 Frames 552-553 — **High-kaolin agars.** Ger. patent application I 68695 IVa/23a, dated Jan 20, 1941. In German. 2.00

L 86964 Frames 554-556 — **Process for recovery of manganese dioxide from manganese sulfate solutions.** Ger. patent application I 68728 IVb/12a, dated Jan 23, 1941. In German. 2.00

L 86965 Frames 557-559 — **Process for production of plastic shapes from polyvinyl chloride plastics.** Ger. patent application I 68729 IVc/39b, dated Jan 24, 1941. In German. 2.00

L 86966 Frames 560-563 — Sizing agents. Ger. patent application I 68738 IVd/k, dated Jan 25, 1941. In German. 2.00

L 61714 Frames 564-566 — Process for production of sulfur dyestuffs. Ger. patent application I 68775 IVd/22d, dated Jan 29, 1941. In German. 1.00

L 61713 Frames 567-569 — Process for production of sulfur dyestuffs. Ger. patent application I 68776 IVd/22d, dated Jan 29, 1941. In German. 1.00

L 61712 Frames 570-572 — Concrete channels resistant to acid and alkali. Ger. patent application I 68888 IVb/80a, dated Feb 12, 1941. In German. 1.00

L 61711 Frames 573-576 — Process for recovery of phenols from highly diluted solutions, e. g. distillation waters. Ger. patent application I 68890 IVc/12q, dated Feb 14, 1941. In German. 1.00

L 61710 Frames 577-581 — Process for recovery of phenols from highly diluted solutions, e. g. distillation waters. Ger. patent application I 68891 IVc/12q, dated Feb 14, 1941. In German. 1.00

L 61709 Frames 582-585 — Weed killers. Ger. patent application I 68955 IVa/45 1, dated Feb 22, 1941. In German. 1.00

L 61708 Frames 586-588 — Process for separation of metal sulfides from acids by flotation with gases. Ger. patent application I 68954 IVb/12g, dated Feb 21, 1941. In German. 1.00

L 61707 Frames 589-597 — Process and apparatus for rectification of mixtures of liquids. Ger. patent application I 68972 IVa/12a, dated Feb 25, 1941. In German. 1.00

L 61706 Frames 598-600 — Softeners for textiles. Ger. patent application I 69003 IVd/8k, dated Feb 28, 1941. In German. 1.00

L 61705 Frames 601-603 — High-pressure container for gases with quick-closing valve. Ger. patent application I 65171 IVb/12g, dated Jul 19, 1939. In German. 1.00

L 61704 Frames 604-606 — Apparatus for setting off gas-forming reactions by impact fuse ignition. Ger. patent application I 65172 IVb/12g, dated Jul 19, 1939. In German. 1.00

L 61703 Frames 607-609 — Process for production of a sodium sulfate easily reducible to sodium sulfide by means of hydrogen. Ger. patent application I 69027 IVb/12 1, dated Mar 1, 1941. In German. 1.00

L 61702 Frames 610-613 — Process for production of water-soluble nitrogenous condensation products. Ger. patent application I 69064 IVc/39c, dated Mar 5, 1941. In German. 1.00

L 61701 Frames 614-616 — Process for softening textile fabrics. Ger. patent I 69047 IVd/8k, dated Mar 5, 1941. In German. 1.00

L 61700 Frames 617-620 — Two-piece electrically heated recipient for light-metal working. Ger. patent application I 69069 Ic/3c, dated Mar 2, 1941. In German. 1.00

L 61699 Frames 621-625 — Process for production of chloroacetyl chloride. Ger. patent application I 69088 IVd/12a, dated Mar 11, 1941. In German. 1.00

L 61698 Frames 626-630 — Use of molten saltpeter baths resistant to decomposition as a quenching medium for the steel wire cementation process. Ger. patent application I 69223 VI/18c, dated Mar 28, 1941. In German. 1.00

L 61697 Frames 631-633 — Process for production of sulfonic acids. Ger. patent application I 69158 IVd/12c, dated Mar 17, 1941. In German. 1.00

L 61696 Frames 634-638 — Process for production of surface of uniform appearance on magnesium alloys. Ger. patent application I 69198 VI/48d, dated Mar 24, 1941. In German. 1.00

L 61695 Frames 639-645 — Low-frequency furnace for use at increased pressure or in a vacuum. Ger. patent application I 69249 VIIIc/21h, dated Mar 27, 1941. In German. 1.00

L 61694 Frames 646-653 — Low-frequency induction furnace for fusion of light metals and their alloys. Ger. patent application I 69239 VI/31a, dated Mar 27, 1941. In German. 1.00

L 61693 Frames 654-660 — Production of magnesia concrete. Ger. patent application I 69238 VI/80b, dated Mar 27, 1941. In German. 1.00

L 61692 Frames 661-665 — Gas mask. Ger. patent application I 68106 V/61a, dated Oct 25, 1940. In German. 1.00

L 61691 Frames 666-668 — Prevention of the corrosive action of chlorinated hydrocarbons. Ger. patent application I 69308 IVc/22g, dated Apr 2, 1941. In German. 1.00

L 61690 Frames 669-670 — Storable powder for thawing of sleet. Ger. patent I 69309 IVc/22g, dated Apr 3, 1941. In German. 1.00

L 61689 Frames 671-675 — Process for refining the structure of magnesium and magnesium alloys. Ger. patent application I 69311 VI/40a, dated Apr 4, 1941. In German. 1.00

L 61688 Frames 676-682 — Analytical processes and equipment. Ger. patent application I 69310 IIb/42 1, dated Apr 4, 1941. In German. 1.00

L 61687 Frames 683-686 — Process for purification of magnesium. Ger. patent application I 69313 VI/40a, dated Apr 4, 1941. In German. 1.00

L 61686 Frames 687-691 — Fungicide for living plants. Ger. patent application I 69327 IVa/45 1, dated Apr 9, 1941. In German. 1.00

L 61685 Frames 692-693 — Process for refining the structure of magnesium and magnesium alloys. Ger. patent application I 69372 VI/40a, dated Apr 16, 1941. In German. 1.00

L 61684 Frames 694-697 — Process for production of di- and trichloroacetyl chlorides. Ger. patent application I 69390 IVd/12o, dated Apr 17, 1941. In German. 1.00

L 61683 Frames 698-700 — Chlorinated hydrocarbons non-corrosive to metal. Ger. patent application I 69460 IVd/12o, dated Apr 24, 1941. In German. 1.00

L 61682 Frames 701-702 — Process for production of diazo dyestuffs. Ger. patent application I 69565 IVd/22a, dated May 8, 1941. In German. 1.00

L 61681 Frames 703-706 — Process for purification of sugar solution from ions of polyvalent metals. Ger. patent application I 69582 IVa/89c, dated May 10, 1941. In German. 1.00

L 61680 Frames 707-714 — Process and apparatus for determining the capacity of containers charged with a powdery, granular or liquid substance. Ger. patent application I 69585 IXb/42c, dated May 14, 1941. In German. 1.00

L 61679 Frames 715-718 — Process for production of pliant waterproof tarpaulins. Ger. patent application I 69622 IVd/8 1, dated May 16, 1941. In German. 1.00

L 61678 Frames 719-722 — Process for production of a protective surface on light metals and light alloys. Ger. patent application I 69650 VI/48a, dated May 22, 1941. In German. 1.00

L 61677 Frames 723-726 — Process for production of ceramic shapes. Ger. patent application I 69651 VI/80b, dated May 22, 1941. In German. 1.00

L 61676 Frames 727-731 — Obtaining highly concentrated alkali liquors by decomposition of alkali amalgam. Ger. patent application I 69695 IVb/12 1, dated May 24, 1941. In German. 1.00

L 61675 Frames 732-737 — Binding agent. Ger. patent application I 69696 VI/40b, dated May 27, 1941. In German. 1.00

L 61674 Frames 738-742 — Production of zinc alloys rich in iron. Ger. patent application I 69707 VI/40b, dated May 29, 1941. In German. 1.00

L 61673 Frames 743-744 — Use of active carbon for covering of sand casting molds. Ger. patent application I 69708 VI/31c, dated May 29, 1941. In German. 1.00

L 61672 Frames 745-749 — Process and apparatus for objective measurement of light. Ger. patent application I 69713 IXa/42h, dated May 30, 1941. In German. 1.00

L 61671 Frames 750-752 — Textile finishing. Ger. patent application I 69718 IVd/8c, dated May 29, 1941. In German. 1.00

L 61670 Frames 753-755 — Process for regeneration of exchangers charged with calcium ions. Ger. patent application I 69738 IVb/12g, dated May 31, 1941. In German. 1.00

L 61669 Frames 756-758 — Process for production of plywood or veneer. Ger. patent application I 69788 XII/38c, dated Jun 7, 1941. In German. 1.00

L 61668 — Process for purification of raw

Frames 759-762 — 1-ethoxy-4-hydroxybenzaldehyde. Ger. patent application I 69883 IVd/12o, dated Jun 29, 1941. In German. 1.00

L 61667 Frames 763-766 — Process and appliance for fractional distillation of mixtures of liquids. Ger. patent application I 69956 IVa/12a, dated Jun 30, 1941. In German. 1.00

L 61666 Frames 767-772 — Process for recovery of aluminum from aluminum alloys by fractional distillation. Ger. patent application I 64754 VI/40a, dated Jun 1, 1939. In German. 1.00

L 61665 Frames 773-781 — Process for production of sheets from aluminum alloys of high tensile strength and capacity of being cold drawn. Ger. patent application I 65768 VI/40d, dated Oct 9, 1939. In German. 1.00

L 61664 Frames 782-785 — Process for seam welding of metal sheets, particularly in the manufacture of light-metal containers. Ger. patent application I 67573 Ib/49h, dated Aug 6, 1940. In German. 1.00

L 61663 Frames 786-788 — Process for production of chloroethane sulfonic acid. Ger. patent application I 69947 IVd/12o, dated Jul 1, 1941. In German. 1.00

L 61662 Frames 789-794 — Apparatus for cleaning the melt channels of induction furnaces. Ger. patent application I 70094 VI/31a, dated Jul 22, 1941. In German. 1.00

L 61661 Frames 795-798 — Deterrent for insects noxious to plants. Ger. patent application I 70110 IVa/45 1, dated Jul 23, 1941. In German. 1.00

L 61660 Frames 799-802 — Apparatus for registering movements by means of light barriers. Ger. patent application I 70153 IXb/42d, dated Jul 31, 1941. In German. 1.00

L 61659 Frames 803-805 — Process for production of chlorinated hydrocarbons. Ger. patent application I 70193 IVd/12o, dated Aug 5, 1941. In German. 1.00

L 61658 Frames 806-813 — Apparatus for registration of movements by means of light barriers. Ger. patent application I 70166 IXb/42d, dated Aug 2, 1941. In German. 1.00

L 61657 Frames 814-816 — Process for production of azo dyestuffs. Ger. patent application I 70253 IVd/22a, dated Aug 14, 1941. In German. 1.00

L 61656 Frames 817-819 — Tube for molten salt baths. Ger. patent application I 70194 VI/40d, dated Aug 9, 1941. In German. 1.00

L 61655 Frames 820-821 — Process for preparing 1-amino-2-chloro(bromo)-4(6)-nitrobenzene-6(4)-sulfonic acid. Ger. patent application I 70203 IVc/12q, dated Aug 8, 1941. In German. 1.00

L 61654 Frames 822-826 — Process for cultivating yeast and similar fungi in cellulose waste liquors from deciduous woods. Ger. patent application I 70227 IVa/6a, dated Aug 12, 1941. In German. 1.00

L 61653 Frames 827-828 — Cylinder heads. Ger. patent application I 70245 Ia/46c, dated Aug 14, 1941. In German. 1.00

L 61652 Frames 829-831 — Process for preparing a pure paraffin sulfonate. Ger. patent application I 70254 IVd/12o, dated Aug 15, 1941. In German. 1.00

L 61651 Frames 832-834 — Rough detergent free from fatty acid. Ger. patent application I 70271 IVc/8i, dated Aug 18, 1941. In German. 1.00

L 61650 Frames 835-837 — Process for producing purified lignin preparations. Ger. patent application I 70272 IVc/12o, dated Aug 18, 1941. In German. 1.00

L 61649 Frames 838-840 — Process for preparing pressed masses. Ger. patent application I 70270 IVc/39c, dated Aug 18, 1941. In German. 1.00

L 61648 Frames 841-844 — Process for cultivating yeast and similar fungi on liquids containing carbohydrates. Ger. patent application I 70273 IVa/6a, dated Aug 19, 1941. In German. 1.00

L 61647 Frames 845-849 — Process for production of anti-abrasive protective layers on magnesium and magnesium alloys. Ger. patent application I 70288 VI/48a, dated Aug 21, 1941. In German. 1.00

L 61646 Frames 850-856 — Process for cultivation of yeast and similar fungi in cellulose waste liquors from deciduous woods or in vinasses from any other type of wood cellulose. Ger. patent application I 70313 IVa/6a, dated Aug 23, 1941. In German. 1.00

L 61645 Frames 857-860 — Building materials. Ger. patent application I 70394 IVc/39b, dated Sep 4, 1941. In German. 1.00

L 61644 Frames 861-864 — Process for regeneration of cation and anion exchangers. Ger. patent application I 70410 IVb/85g, dated Sep 8, 1941. In German. 1.00

L 61643 Frames 865-869 — Process for production of a copper coating on brass and brasslike alloys. Ger. patent application I 70412 VI/48a, dated Sep 10, 1941. In German. 1.00

L 61642 Frames 870-872 — Substitute for fermentation fat. Ger. patent application I 70458 IVa/6a, dated Sep 16, 1941. In German. 1.00

L 61641 Frames 873-875 — Substitute for fermentation fat. Ger. patent application I 70457 IVa/6a, dated Sep 16, 1941. In German. 1.00

L 61640 Frames 876-877 — Textile preservatives. Ger. patent application I 70464 IVa/8k, dated Sep 18, 1941. In German. 1.00

L 61639 Frames 878-881 — Plate design in rectification column. Ger. patent application I 70576 IVa/12a, dated Sep 29, 1941. In German. 1.00

L 61638 Frames 882-887 — Process for production of a magnesiumhydroxide coating that deposits quickly. Ger. patent application I 70558 IVb/12m, dated Sep 30, 1941. In German. 1.00

L 61637 Frames 888-899 — Process for production of cast blocks of uniform composition from alloys capable of liquidation, particularly magnesium alloys. Ger. patent application I 65014 VI/31c, dated Jul 1, 1939. In German. 1.00

L 61636 Frames 900-907 — Electrolysis of metal salt solutions by the amalgam process. Ger. patent application I 70577 IVb/12h, dated Oct 2, 1941. In German. 1.00

L 61635 Frames 908-190 — Process for production of carbon disulfide. Ger. patent application I 70610 IVb/121, dated Oct 7, 1941. In German. 1.00

L 61634 Frames 911-912 — Purification of cotton waste. Ger. patent application I 70660 VII/8a, dated Oct 16, 1941. In German. 1.00

L 61633 Frames 913-915 — Process for production of synthetic resin exchangers containing carboxylic acid groups, on a phenolic basis. Ger. patent application I 70756 IVd/39b, dated Oct 28, 1941. In German. 1.00

L 61632 Frames 916-920 — Apparatus for extraction of constant quantities of liquid from containers with varying liquid levels. Ger. patent application (no. not given). n. d. In German. 1.00

L 61631 Frames 921-925 — Process for pretreating vinasses from cellulose waste liquors for yeast cultivation. Ger. patent application I 70838 IVa/6a, dated Nov 8, 1941. In German. 1.00

L 61630 Frames 926-928 — Anti-rust agents. Ger. patent application I 70858 IVa/45 1, dated Nov 10, 1941. In German. 1.00

L 61628 Frames 929-931 — Process for combustion of ammonia in common types of furnaces. Ger. patent application I 70863 IVb/121, dated Nov 12, 1941. In German. 1.00

L 61629 Frames 932-934 — Process for purification of paraffin sulfonates. Ger. patent application I 70921 IVd/12o, dated Nov 21, 1941. In German. 1.00

L 61627 Frames 935-937 — Process for production of 2,3-dihydroxy benzoic acid. Ger. patent application I 70980 IVc/12q, dated Nov 28, 1941. In German. 1.00

L 61626 Frames 938-939 — Process for cultivation of yeast and similar fungi in liquids containing carbohydrates. Ger. patent application I 70986 IVa/16a, dated Nov 29, 1941. In German. 1.00

L 61625 Frames 940-943 — Process for production of synthetic resins. Ger. patent application I 71004 IVc/39c, dated Dec 2, 1941. In German. 1.00

L 61624 Frames 944-946 — Process for determining the direction and measuring the surface tension in construction parts. Ger. patent application I 71025 IXb/42k, dated Dec 4, 1941. In German. 1.00

L 61623 Frames 947-949 — Process for polymerization of unsaturated compounds. Ger. patent application I 71037 IVc/39c, dated Dec 6, 1941. In German. 1.00

L 61622 Frames 950-952 — **Emulsifying agents.** Ger. patent application I 71049 IVd/12e, dated Dec 8, 1941. In German. 1.00

L 61621 Frames 953-955 — **Process for carrying out catalytically accelerated reactions.** Ger. patent application I 71111 IVb/12g, dated Dec 16, 1941. In German. 1.00

L 61620 Frames 955-959 — **Substitutes for "Linalool."** Ger. patent application I 71112 IVd/12o, dated Dec 17, 1941. In German. 1.00

L 61619 Frames 960-962 — **Substitute for pepper oil.** Ger. patent application I 71131 IVa/53k, dated Dec 17, 1941. In German. 1.00

L 61618 Frames 963-965 — **Packing.** Ger. patent application I 71113 XII/47f, dated Dec 17, 1941. In German. 1.00

L 61617 Frames 966-969 — **Substitute for "Vetiver Oil."** Ger. patent application I 71132 IVc/12o, dated Dec 18, 1941. In German. 1.00

L 61616 Frames 970-972 — **Process for production of halogenated carboxylic esters from halogenated alkanols.** Ger. patent application I 71165 IVd/12o, dated Dec 19, 1941. In German. 1.00

L 61615 Frames 973-974 — **Agent for preventing hair dyes from spreading to parts not to be dyed.** Ger. patent application I 71149 IVa/30h, dated Dec 19, 1941. In German. 1.00

L 61614 Frames 975-979 — **Process for separation of mixtures of isomeric aromatic hydroxy compounds.** Ger. patent application I 71150 IVc/12q, dated Dec 22, 1941. In German. 1.00

L 61613 Frames 980-982 — **Process for absorption of ammonia combustion gases.** Ger. patent application I 71216 IVb/121, dated Dec 23, 1941. In German. 1.00

L 61612 Frames 983-987 — **Process and apparatus for converting ammonia into nitric oxides.** Ger. patent application I 71217 IVb/121, dated Dec 24, 1941. In German. 1.00

L 61611 Frames 988-989 — **Plasticizers.** Ger. patent application I 71247 IVd/8k, dated Dec 27, 1941. In German. 1.00

L 61610 Frames 990-992 — **Mixtures for building boards.** Ger. patent application I 71276 IVr/39b, dated Dec 27, 1941. In German. 1.00

L 61609 Frames 993-996 — **Process for removing salt from water by means of cation and anion exchangers.** Ger. patent application I 71218 IVb/85b, dated Dec 31, 1941. In German. 1.00

L 61608 Frames 997-999 — **Process and apparatus for conducting combustions.** Ger. patent application I 71304 V/24c, dated Jan 10, 1942. In German. 1.00

L 61607 Frames 1000-1006 — **Process for production of magnesium chloride free from water and oxides.** Ger. patent application I 71318 IVb/12m, dated Jan 12, 1942. In German. 1.00

L 61606 Frames 1007-1010 — **Process for oxidation of ammonia.** Ger. patent application I 71327 IVb/121, dated Jan 14, 1942. In German. 1.00

L 61605 Frames 1011-1015 — **Electrolytic lustering and polishing of metals and alloys.** Ger. patent application I 71436 VI/48a, dated Jan 30, 1942. In German. 1.00

L 61604 Frames 1016-1018 — **Process for obtaining ammonium aluminum tetrafluoride.** Ger. patent application I 71347 IVb/121, dated Jan 15, 1942. In German. 1.00

L 61603 Frames 1019-1025 — **Generator of pressure gas, particularly for fire extinguishers.** Ger. patent application M 166623 V/61a, dated Oct 28, 1941. In German. 1.00

L 61601 — **Patent applications of I. G. Wolfen Farben Patent Office, 1939-1942, complete with index compiled by Höchst Patent Office. Index.** 2.00

PB L 84158. REICHSPATENTAMT, BERLIN. German patents: Class 8h, 8i; Groups 1-8. (FIAT Microfilm Reel CC 76, Frames 1-1038) 1877-1941. 1038 f. Price: Microfilm-$7.00 - Enlargement print-$105.00
This microfilm reel prepared by FIAT in Germany from the files of the German Patent Office, contains 408 patents in Class 8h, 8i; Groups 1, 2, 3, 4, 5, 6, 7 and 8; linoleum. Wall linoleum, oilcloth, wall paper, surface coverings, bleaching and washing are included. The patents are dated between 1877 and 1941. In German.

PB L 84158-S. REICHSPATENTAMT, BERLIN. German patents: Class 8h, 8i; Groups 1-8. (FIAT Microfilm Reel C 76, Frames 1-1038, abstract cards) 1877-1941. 408 p. Price: Microfilm-$7.00 - Photostat-$41.00
These are abstract cards for the above FIAT Microfilm Reel CC 76, PB 84158, prepared by FIAT personnel in Germany. Each abstract card gives the German title with an English translation, patent number, classification, date, patentee and inventor.

TECHNICAL ORDERS

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Electronics

PB L 55936-R. U. S. ARMY AIR FORCES. Handbook of operating instructions for radio set AN/APQ-7. (Supersedes PB 55936) (Tech Order AN 16-30APQ7-2) Apr 1947. 136 p. Price: Microfilm-$3.00 - Photostat-$10.00

PB L 53904-R2. U. S. ARMY AIR FORCES. Handbook of maintenance instructions for Shoran recorder radar assembly AN-APA-54. (Partial revision to PB 53904). (Tech Order AN 16-30APA54-3, rev.). Sep 1946. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 53903-R. U. S. ARMY AIR FORCES. Handbook of operating instructions for Shoran recorder radar assembly AN/APA-54. (Partial revision of PB 53903) (Tech Order AN 16-30APA54-2, rev.) Mar 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81263. U. S. ARMY AIR FORCES. Modification to prolong life of power amplifier tubes - AN/CRN-2. (Tech Order 16-30CRN2-22). May 1947. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 53899-R. U. S. ARMY AIR CORPS. Radio, radar and electronics spare parts list for frequency meter BC-638-A. (Supersedes PB 53899) (Tech Order 16-55-283, rev.) Mar 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81264. U. S. ARMY AIR FORCES. Radio, radar and electronics spare parts list for radio receiver set AN/ARW-26. (Tech Order 16-55-219). Mar 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81266. U. S. ARMY AIR FORCES. Radio, radar and electronics spare parts list for test sets RC-54-C and RC-55-C. (Tech Order 16-55-214). Mar 1947. 5 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 66099-S. U. S. ARMY AIR FORCES. Replacement of all fixed wire antennae with antenna assembly AS-315/A - R-29, R-29A, R-29B, C-46D, C-46F, C-47B, C-54, C-54A, C-54B, C-54D, C-54E, C-54G, C-69, C-74, C-82A, C-117A, F-13 and F-13A (and training versions of the above models). (Supplement to PB 66099) (Tech Order 01-1-261A) May 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

Generators, Motors, Transmission, Distribution and Allied Equipment

PB L 87558. U. S. ARMY AIR FORCES. Handbook of instructions with parts catalog: Portable electric power plant, type C-1A. (Manufactured by Continental Electric Co., Inc., Newark, N. J.). (Tech Order 19-45-45). Mar 1944. 33 p. Price: Microfilm-$1.75 - Photostat-$4.00

TRANSPORTATION EQUIPMENT

AERONAUTICS

Engines and Propellers

PB L 57123-R. U. S. ARMY AIR FORCES. Overhaul instructions for aircraft engines, models R-2800-14W, -22, -22W, -34, -34W, -57, -73, -77, -81, -83, -85. (Partial revision of PB 57123) (Tech Order AN 02-10GC-3, rev.) Mar 1947. 114 p. Price: Microfilm-$3.00 - Photostat-$8.00

PB L 36327-R3. U. S. ARMY AIR FORCES. Overhaul instructions for aircraft engines, models R-2800 -21,-27,-31, 43,-51,-59,-63,-71,-75 and -79. (Partial revision of PB 36327; for additional partial revisions see PB 36327-R and PB 36327-R2). (Tech Order AN 02-10GA-3, rev.). Dec 1946. 12 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 41761-R4. U. S. ARMY AIR FORCES. Overhaul instructions for aircraft engines, models R-3350 -15, -19, -21, -23A, -35, -35A, -41, -57, -57A, -59. (Partial revision of PB 41761; for additional partial revisions see PB 41761-R - R3) (Tech Order AN 02-35JA-3, rev.) Mar 1947. 8 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 57238-R. U. S. ARMY AIR FORCES. Overhaul instructions for constant speed full feathering propellers, models A542F-D1 and AL542F-D1. (Partial revision of PB 57238) (Tech Order AN 03-20EG-2, rev.) Jul 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81770. U. S. ARMY AIR FORCES. Overhaul instructions for model R202-101 manual control propeller (Beech). (Tech Order AN 03-20KA-2). May 1947. 21 p. Price: Microfilm-$1.50 - Photostat-$3.00

PB L 34433-R3. U.S. ARMY AIR FORCES. Overhaul instructions for models R-2000-7 and R-2000-11 aircraft engines. (Partial revision of PB 34433; for additional partial revisions see PB 34433-R and PB 34433-R2) (Tech Order AN 02-10FA-3, rev.) Mar 1947. 67 p. Price: $1.00 - Photostat-$5.00

PB L 41820-R3. U. S. ARMY AIR FORCES. Overhaul instructions for models R-2600 -8,-8A,-9,-12,-13,-29,-31 aircraft engines. (Partial revision of PB 41820; for additional partial revisions see PB 41820-R and 41820-R2). (Tech Order AN 02-35HB-3, rev.). Mar 27, 1947. 7 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 31168-S. U. S. ARMY AIR FORCES. Packard - Retorquing of crankcase - upper to cylinder head stud nuts - V-1650 series. (Supersedes PB 31168). (Tech Order AC-55A-9, suppl). Mar 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 41763-R. U. S. ARMY AIR FORCES. Parts catalog for aircraft engines, models R-3350 -19, -41, -57, -57A, -57DW, -57A-DW, -59 and -59A. (Partial revision of PB 41763) (Tech Order AN 02-35JA-4D, rev.) Mar 1947. 6 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 45146-R2. U. S. ARMY AIR FORCES. Parts catalog for hydromatic propellers (Hamilton Standard). (Partial revision of PB 45146; for other partial revision see PB 45146-R) (Tech Order AN 03-20CC-2, rev.) Feb 1947. 43 p. Price: Microfilm-$1.00 - Photostat-$3.00

PB L 57302-R3. U. S. ARMY AIR FORCES. Parts catalog for injection carburetors PD, PR and PT series. (Partial revision of PB 57302; for additional partial revisions see

PB 57302-R and PB 57302-R2) (Tech Order 03-10BA-4, rev.) Oct 1946. 124 p. Price: Microfilm-$3.00 - Photostat-$9.00

PB L 61771. U. S. ARMY AIR FORCES. Parts catalog for model R202-101 manual control propeller (Beech). (Tech Order 03-20KA-3). Jun 1947. 12 p. Price: Microfilm-$1.25 - Photostat-$2.00

PB L 57229-R. U. S. ARMY AIR FORCES. Parts catalog for propellers models A542F-D1 and AL542F-D1. (Supersedes PB 57229) (Tech Order AN 03-20EG-3, rev.) Jul 1947. 13 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 47309-R2. U. S. ARMY AIR FORCES. Propellers and accessories - Operating time between major overhaul. (Supersedes PB 47309-R) (Tech Order 03-20-5, rev.) Jul 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 36357-R. U. S. ARMY AIR FORCES. Service instructions for aircraft engines, model O-435-11. (Partial revision of PB 36357). (Tech Order AN 02-15BC-2, rev.). Mar 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB 34455-R2. U. S. ARMY AIR FORCES. Service instructions for aircraft engines, models R-1830 -43,-43A,-65,-65A and-90C. (Partial revision of PB 34455; for additional partial revision see PB 34455-R). (Tech Order AN-02-10CD-2). Mar 1947. 34 p. Price: Microfilm-$1.00 - Photostat-$3.00

PB L 34451-R2. U. S. ARMY AIR FORCES. Service instructions for aircraft engines models R-1830-82 and 92. (Basic report; includes partial revisions PB 34451 and PB 34451-R). (Tech Order AN 02-10CC-2). Mar 1947. 77 p. Price: Microfilm-$2.00 - Photostat-$6.00

PB L 36333-R3. U. S. ARMY AIR FORCES. Service instructions for aircraft engines, models R-2800 -10W, 22, 22W, 34, 34W-57, 73, 77, 81, 83 and 85. (Partial revision of PB 36333; for additional partial revisions see PB 36333-R and PB 36333-R2). (Tech Order AN 02-10CC-2, rev.). Apr 1947. 25 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 42136-R3. U. S. ARMY AIR FORCES. Service instructions for aircraft engines, models R-4360-2, -2A, -4, -4A, -18, -27, -35 and -35A. (Manufactured by Pratt and Whitney Aircraft, East Hartford, Conn.) (Supersedes PB 42136) (Tech Order 02-10HA-2) Mar 1947. 150 p. Price: Microfilm-$3.00 - Photostat-$10.00

PB L 34428-R. U. S. ARMY AIR FORCES. Service instructions for model R-1340-AN-1 aircraft engine. (Partial revision of PB 34428). (Tech Order AN 02-10DC-2, rev.). Apr 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 34432-R3. U. S. ARMY AIR FORCES. Service instructions for models R-2000-3, 7, 11 aircraft engines. (Partial revision of PB 34432; for additional partial revisions see PB 34432-R and PB 34432-R2). (Tech Order AN 02-10FA-2, rev.). Mar 1947. 19 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 34436-R3. U. S. ARMY AIR FORCES. Service instructions for model R-2000-9 aircraft engines. (Partial revision of PB 34436; for additional partial revisions see PB 34436-R and PB 34436-R2). (Tech Order AN 02-10FB-2, rev.). Mar 1947. 15 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 42123-R2. U. S. ARMY AIR FORCES. Specification and flow bench test sheets for injection carburetors (Bendix). (Partial revision of PB 42123) (Tech Order 03-10BA-1, rev.) Jul 1947. 24 p. Price: Microfilm-$1.00 - Photostat-$2.00

Instruments

PB L 62554-R. U. S. ARMY AIR FORCES. Handbook of maintenance instructions for radio compass AN/ARN-6. (Partial revision of PB 62554) (Tech Order AN 16-30ARN6-3, rev.) Feb 1947. 62 p. Price: Microfilm-$2.00 - Photostat-$5.00

PB L 42591-R. U. S. ARMY AIR FORCES. Operating instructions: Army types E-6B and AN 5835-1, Navy type R-88-C-1120 dead reckoning computer. (Partial revision of PB 42591). (Tech Order 05-35-9, rev.). Apr 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 42591-R2. U. S. ARMY AIR FORCES. Operating instructions: Army types E-6B and AN 5835-1, Navy type R 88-C-1120 dead reckoning computer. (Partial revision of PB 42591). (Tech Order 05-35-9, rev.). Jul 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 44366-R. U. S. ARMY AIR FORCES. Operation and service instructions for D.C Selsyn liquid level indicators and transmitters (General Electric). (Partial revision of PB 44366) (Tech Order AN 05-65D-1, rev.) Jun 1947. 41 p. Price: Microfilm-$1.00 - Photostat-$3.00

PB L 44343-R3. U. S. ARMY AIR FORCES. Operation, service and overhaul instructions for Autosyn indicators and transmitters (Pioneer). (Partial revision of PB 44343; for additional partial revisions see PB 44343-R and PB 44343-R2) (Tech Order AN 05-55B-1, rev.) Mar 1947. 19 p. Price: Microfilm-$1.00 - Photostat-$2.00

PB L 42630-R2. U. S. ARMY AIR FORCES. Operation, service and overhaul instructions, with parts catalog, for electric tachometer indicators and generators, Army types E-13, E-23, AN5530-1 and AN 5531-1 and -2, Navy stock Nos. R88-I-2385, R88-1330 and -1335 (Kollsman). (Partial revision of PB 42630; for additional partial revision see PB 42630-R) (Tech Order AN 05-5L-16, rev.) Feb 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

MISCELLANEOUS

PB L 39828-R. U. S. ARMY AIR FORCES. Kit - Clothing, ground crewman, aircraft. (Supersedes PB 39828). (Tech Order 00-30-42, rev.). May 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80530. U. S. ARMY AIR FORCES. Kit - Dispatcher, electrical, propeller laboratory. (Tech Order 00-30-962). Feb 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80977. U. S. ARMY AIR FORCES. Kit - Electrician, maintenance and installation, power plant laboratory. (Tech Order 00-30-585). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80983. U. S. ARMY AIR FORCES. Kit - Electrician, wind tunnel, aircraft laboratory. (Tech Order 00-30-693). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81005. U. S. ARMY AIR FORCES. Kit - Engine mechanic and test operator, power plant laboratory. (Tech Order 00-30-570). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80547. U. S. ARMY AIR FORCES. Kit - Engineer, accessory power-plant, equipment laboratory. (Tech Order 00-30-920). Feb 1947. 3 p. Price: Microfilm-$1.00-Photostat-$1.00

PB L 39833-R. U. S. ARMY AIR FORCES. Kit-engineer, aerial. (Replaces PB 39833, October 31, 1944). (Tech Order 00-30-54, rev.). Apr 1947. 1 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80498. U. S. ARMY AIR FORCES. Kit - Engineer, demonstration, structural, aircraft laboratory. (Tech Order 00-30-994). Feb 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80991. U. S. ARMY AIR FORCES. Kit - Engineer, flight, test, electrical, equipment laboratory. (Tech Order 00-30-705). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81007. U. S. ARMY AIR FORCES. Kit - Engineer, group, research, structures, aircraft laboratory. (Tech Order 00-30-597). Feb 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80556. U. S. ARMY AIR FORCES. Kit: Engineer, instrument, development and experimental, equipment laboratory. (Tech Order 00-30-897). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80965. U. S. ARMY AIR FORCES. Kit - Engineer, operation and maintenance, equipment, control, engine, aircraft. (Tech Order 00-30-922). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80561. U. S. ARMY AIR FORCES. Kit: Engineer, project, flight-control equipment. (Tech Order 00-30-907). Feb 1947. 4 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80546. U. S. ARMY AIR FORCES. Kit: Engineer, project, test, performance, equipment control. (Tech Order 00-30-917). Feb 1947. 4 p. Price: Microfilm-$1.00-Photostat-$1.00

PB L 80559. U. S. ARMY AIR FORCES. Kit: Engineer, test, system, electrical, aircraft, equipment laboratory. (Tech Order 00-30-904). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80557. U. S. ARMY AIR FORCES. Kit: Engineering aide, development and experimental, navigation instrument, equipment laboratory. (Tech Order 00-30-899). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80485. U. S. ARMY AIR FORCES. Kit - Engineering aide, development and experimental, navigational equipment and aircraft instrument. (Tech Order 00-30-895). Feb 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 80519. U. S. ARMY AIR FORCES. Kit - Helper, mechanic, test, structures, aircraft laboratory. (Tech Order 00-30-980). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 39832-R. U. S. ARMY AIR FORCES. Kit - Machinist. (Supersedes PB 39832). (Tech Order 00-30-52, rev.). Apr 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81004. U. S. ARMY AIR FORCES. Kit - Machinist, development and experimental, power plant, aircraft. (Tech Order 00-30-556). Feb 1947. 3 p. Price: Microfilm-$1.00 - Photostat-$1.00

PB L 81214. U. S. ARMY AIR FORCES. Kit-mechanic, development, radar computor, armament laboratory. (Tech Order 00-30-719). Feb 1947. 2 p. Price: Microfilm-$1.00 - Photostat-$1.00.

REGISTER OF PATENTS AVAILABLE FOR LICENSING OR SALE

Information on the following patents can be obtained from the U. S. Patent Office, Washington 25, D. C.

The "Groups" appearing after the patent abstracts are based on the Standard Industrial Classification Manual, Vol. I, Manufacturing Industries, Executive Office of the President, Bureau of the Budget.

Official Gazette, February 3, 1948

PAT. 2,226,887. Flexible drive tension means. Patented Dec 31, 1940.
This patent refers to a tensioning means particularly adapted to the driving of a generator of a railway passenger car from the car axle by means of a belt or group of belts and pulley arrangements to obtain electric power. The arrangement enables the generator to be centrally located on the car truck frame thus eliminating the unbalance found in many truck-hung generators. Parts for providing the desired drive ratio are all incorporated in a single housing allowing the use of stock generators of standard speeds. (Owner) Carl E. Wood, 7416 Harwood Ave., Milwaukee 13, Wis. Groups 35--66; 36--41. Reg. No. 9,071.

PAT. 2,429,845. Velocipede. Patented Oct 28, 1947.
A four-wheel velocipede and hobbyhorse so combined that when the rider rocks he propels the vehicle forward. An oscillatory rider-structure in the form of a hobbyhorse is supported on a four-wheel base by two crossed pairs of links pivotally connected at their upper ends with the seating structure and at their lower ends with the sides of the wheeled base frame. A connecting rod is pivotally united at upper end with seating structure and at lower end with a crank forming the center of the rear axle, which is the propelling axle. A steering rod is pivoted to bell crank levers secured to outer ends of front axle and extends above the head of the horse. (Owner) Charles E. Scoles. Address correspondence to William S. McDowell, 1035 Huntington Bank Bldg., Columbus 15, Ohio. Group 39--43. Reg. No. 9,072.

PAT. 2,429,978. Centripetal-centrifugal pump. Patented Nov 4, 1947.
Making better use of internal space enables this pump to occupy less room than is ordinarily required by pumps of similar type. The interior of a cylindrical pump casing is divided into intake and discharge sections by a rotor which includes a pair of end plates which flank an intermediate plate having a central opening. Each section has a series of helical impeller blades arranged so that a centripetal flow is induced in the intake section and a centrifugal flow is induced in the discharge section. Radial fins on the interior rim of the casing extend toward the rotor to inhibit the creation of eddy currents within the pump. In operation the rotor is turned by a pulley arrangement, as is usual, and flow maintained by the suction created as the fluid is pumped into the casing and forced through the central opening of the intermediate plate. The direction of flow is changed as the fluid emerges through the central opening by the channels defined by the blades on the opposite side of the intermediate plate so that the fluid is discharged through an outlet provided for the purpose. The apparatus may be used as a booster pump for a closed hot-water system, or for general pumping purposes. (Owner) Richard Blanchard, 17 Bond St., Gardner, Mass. Group 35--61. Reg. No. 9,073.

PAT. 2,429,437. Toothbrush. Patented Oct 21, 1947.
A toothbrush with hollow handle has a removable flexible brush insert which may be adjusted to change the shape of the brushing surface from concave to convex. The insert, mounted in a recess, has one end pivoted and the other end fastened by a hook on the end of an actuator reciprocable rod extending through the handle. A swivelly mounted finger piece may be turned to different notches to lock the shaft in desired position to control the contour of the brushing surface. (Owner) Maurice J. Walker, 1755 E. 67th St., Chicago 49, Ill. Group 39--22. Reg. No. 9,074.

PAT. 1,957,080. Light shield. Patented May 1, 1934.
A light shield designed to be used inside automobile headlights, illuminating roadway but eliminating the glare ordinarily projected. A slightly concave auxiliary reflector is held back of the light bulb, resiliently adjacent the shank of the bulb. A cup-like light-diffusing element is supported by the auxiliary reflector so as to enclose the bulb, emitting a soft white light, which is projected by the reflector through the lens of the headlight. By a system of spacing the reflector from the socket and the light-diffusing element from the reflector (by ears fitting into a concave groove surrounding the reflector) heat from the bulb and reflector is allowed to escape but any light escaping is reflected by the outer wall of the groove. (Owner) Roth No-Glare Lite Company. Address correspondence to Wm. A. Roth, 964 E. Fifth St., St. Paul 6, Minn. Group 35--41. Reg. No. 9,075.

DES. PAT. 147,059. Design for an earring holder. Patented Jul 8, 1947.
This design shows a horizontal frame with cross pieces slanting vertically, on which earrings hang when not in use. (Owner) Shirley C. Nissen, 57 W. Passaic St., Maywood, N. J. Groups 25--99; 33-73; 39--81; 40. Reg. No. 9,076.

DES. PAT. 147,928. Design for a belt. Patented Nov 18, 1947.
The belt shown has a baseball motif. The buckle or large center ornament depicts a stylized baseball diamond. Small designs of mitts, bats, and balls are displayed around the belt. (Owner) Sam Platt, 222 Beaumont St., Brooklyn 29, N. Y. Group 23--83. Reg. No. 9,077

DES. PAT. 147,891. Design for a dining bar. Patented Nov 18, 1947.
A dining bar unit consisting of a folding table and four folding seats. (Owner) Mrs. Vera J. Crawford, 2120 N St., N. W., Washington 2, D. C. Group 25--11--14--19--21--22. Reg. No. 9,078.

PAT. 2,426,685. Chuck. Patented Oct 7, 1947.
This chuck has two sections bolted together to form an annular shell, having a work-receiving opening in the front section and a threaded opening through a boss in the rear section for connecting to a support for mounting in a lathe. The lower end of a vertically slidable yoke in the shell constitutes a lower movable jaw. An upper opposed jaw is slidably mounted in the yoke. A right-hand operating screw is threaded into the top of the yoke and rotatably maintained in the shell against axial displacement. An internally threaded bore of this screw receives a threaded left-hand screw, the lower end of which is rigidly connnected to the upper jaw. Rotation of the right-hand operating screw in reverse directions closes and opens the jaws which are moved the same amount so that they are spaced equidistant from the center at all times. (Owner) Morris Stiecher, 114 Felisa St., San Antonio, Tex. Group 35--43. Reg. No. 9,079.

PAT. 2,428,980. Gauge for measuring chest expansion. Patented Oct 14, 1947.
A chest-encircling strap for use with patients undergoing pulmonary treatment or for exercising chest muscles. The adjustable strap has an elastic connection and a channel at front with graduations, in which a slide is mounted for indicating chest expansion. (Owner) Chris McCann, P. O. Box 87, Dillard, Oreg. Group 39--16. Reg. No. 9,080.

PAT. 2,430,665. Beet harvester with topper. Patented Nov 11, 1947.
A beet harvester for attachment to a tractor. As the harvester moves forward, the tops are cut from beets by adjustable knives pivoted at front of frame. An elevating conveyor picks up the cut tops and delivers them to a discharge conveyor which drops them upon the ground. Digging blades are arranged in pairs back of the topping knives. The blades, adjusted by means of beams pivoted to a cross bar, enter the fround and lift the beets. The blades have fingers which serve as shakers to remove dirt from the beets. Elevating conveyors carry the beets to a transverse discharge conveyor which drops them into a wagon. The machine may be constructed to gather beets from one or more rows at a time. (Owner) Walter O. Briggs, Ault, Colo. Group 35--22. Reg. No. 9,081.

PAT. 2,431,257. Knee protector. Patented Nov 18, 1947.
Knee protector, comprising a strip of cloth having a slide fastener, is adapted to encircle a person's leg at, above, and below the knee. Elastic strips at top and bottom render the protector form-fitting. A guard strip underlies the slide fastener. A removable pad, which has elastic straps projecting from one side, is secured inside the protector by snap fasteners. (Owner) Robert A. Washington, 405 Carlton Ave., Brooklyn 5, N. Y. Groups 23--89; 39--49. Reg. No. 9,082.

PAT. 2,430,689. Lumber handling machine. Patented Nov 11, 1947.
A machine mounted on wheeled chassis to be easily movable in lumber yards is designed for handling or conveying lumber for stacking. A pair of continuous motor-driven conveyor chains having pairs of spaced arms receive a piece of lumber at one side of machine and transport it upward, across, and downward to receiving or stacking point at any height on other side. Conventional transmission mechanism with gear and shift lever provides for changing of speed and reverse drive. The chassis frame is so pivoted that the machine maintains horizontal position even though ground on one side has higher elevation than on other side. (Owner) O. L. Shook, P. O. Box 267, Keysville, Va. Groups 24--21; 35--62. Reg. No. 9,083.

PAT. 2,430,142. Carrier handle. Patented Nov 4, 1947.
An adjustable, detachable bail handle for carrying shopping bags, packages, and flat articles such as panes of glass or boards. Two side pieces of heavy wire are turned in at top to fit into bore of handle grip. Lower end of each side piece is inserted in a tube for locking at various lengths by set screws. Lower portion of carrier is a frame of heavy wire with ends fastened in the tubes by screws and the cross section turned back on itself to form a carrying space for flat articles. (Owner) Stephen C. Roberts, 4818 N. E. 25th Ave., Portland 11, Oreg. Groups 25--99; 33--12--41; 40. Reg. No. 9,084.

PAT. 2,431,104. Metal tie. Patented Nov 18, 1947.
This wall tie for holding furring strips may be cast in a concrete wall during pouring thereof or anchored in the joints between a block wall. It consists of a pliable band of sheet metal folded upon itself to provide a pair of superimposed arms which are joined along a portion of their length. The unjoined ends are bent at right angles and encased in paper or other material which will prevent the bent ends of the tie from becoming bonded with the concrete. The encased portion of the tie will lie between the inner surface of a form board and the outer surface of the wall. When the form board is removed, the encased portion lies in a recess in the wall. The wrapping is then removed and the ends pulled outwardly and bent to hold two adjacent furring strips. Modifications are shown. (Owner) Elizabeth Borda Bright, 114-38 173rd St., St. Albans 12, Long Island, N. Y. Groups 32--71; 33--81. Reg. No. 9,085.

PAT. 2,058,914. Apparatus for producing images of objects. Patented Oct 27, 1936. Reg. No. 9,086

PAT. 2,070,319. Apparatus for influencing the character of electron rays. Patented Feb 9, 1937. Reg. No. 9,087.

These two patents relate to like subject matter as generally described in Patent 2,058,914. Electron rays, such as those emitted by a heated cathode, subjected to radial influence of magnetically or electrostatically controlled diaphragms, act much the same way as light rays passing through an optical lens. When an object impervious to electron rays is exposed to an electron beam being projected on a fluorescent screen, an enlarged image of the object is produced on the screen. Based on such images, high power microscopes and telescopes may be constructed in which fine details are visible far beyond those obtained from lenses in which the optical resolving power is limited by the wavelength of light. Patent 2,070,319 related to diaphragm arrangements which influence the density of the beam, causing the beam to be parallel, converging, or diverging depending upon the position and electric charge of the diaphragm. For example, if the potential of the diaphragm is made negative, the beam is made to converge to a focal point; if positively charged, the beam is made to diverge. By combination of various diaphragms, all devices known in optics and based on converging and diverging beams may be imitated. Numerous arrangements are shown in both patents. (Owner) Reinhold Rudenberg, 32 Ross Road, Belmont, Mass. Groups 36--92; 39--13.

PAT. 2,169,889. Detachable grain door unit for box freight cars. Patented Aug 15, 1939.
Grain door unit consisting of a door frame, a door housing, and a slidable door mounted therein may be readily attached to or detached from the inside of standard box cars. The door may be slid laterally into and out of the housing, or vertically in the frame to provide an exit for grain beneath the lower edge of the door. The opening in the door frame of the unit approximates the size of the door opening of the box car, but the door is of lesser width to permit it to be slid vertically. The frame and housing are well braced and connected in a manner to constitute a strong rigid unit. The frame and housing with the door mounted therein may be handled as a unit without liability of weakening, damaging, or losing any of the parts. The unit may be made of a combination of wood and metal. (Owner) John P. Giaquinto, 170 Locomotive Ave., Rome, N. Y. Groups 24--31; 37--12. Reg. No. 9,088.

The following three patents relating to refrigeration and air-cooling units are owned by Fred J. Heideman, c/o Aeroflo Cooling Systems, 7415 Mack Ave., Detroit 14, Mich. Group 35--84.

PAT. 2,002,575. Compressor unit. Patented May 28, 1935. Reg. No. 9,089.
Compressor unit and motor, mounted to operate with a minimum of friction, are hermetically sealed in a dome sur-

rounded by condenser coils. Gas from the compressor is discharged into the dome and, as pressure is built up, it is discharged into the condenser. The lubricating system performs the added function of reducing the load on the motor when it starts. A sliding piston valve actuated by oil pressure and a spring functions to open and close a bypass communicating with the interior of the dome and cylinder so that, when the motor starts, gas from the dome will flow into the cylinder and back into the dome. As the motor picks up speed, built up oil pressure actuated the valve to block the bypass and open a lubricating port. The compressor is provided with an oscillatory and reciprocative cylinder in the form of a rectangular block and oscillatory piston. An intake port in the cylinder wall is adapted to register with a kidney-shaped cavity on the cylinder bearing surface of a base plate to admit gas from the evaporator into the cylinder.

PAT. 2,013,848. Air cooling and conditioning unit. Patented Sep 10, 1935. Reg. No. 9,090.
In this unit liquid is frozen during active periods of the compressor to provide refrigeration for conditioning air during prolonged idle periods. The unit has a container formed from a single piece of sheet metal comprising a row of parallel troughs spaced to provide air passages therebetween. A pair of end plates closes the ends of the troughs with the lower ends of the plates slotted to provide openings registering with the passages. The end plates and the outer walls of the outermost troughs extend sufficiently upwardly to form a chamber which communicates with all the troughs. The troughs and chamber are partially filled with freezable liquid. An evaporator is immersed in each trough with the evaporators connected in series. All foregoing structure is enclosed in a U-shaped open-ended casing spaced from the bottom and sides of the container to provide additional air passages.

PAT. 2,188,349. Hold-over refrigeration unit. Patented Jan 30, 1940. Reg. No. 9,091.
This refrigeration unit is of the type involving submergence of an evaporator in liquid in a tank and freezing the liquid during active periods of the compressor to permit prolonged idle periods while maintaining substantially full refrigerant effect. In this unit at least two vertical walls of a rectangular tank are corrugated with metal plates secured on the outside to provide a series of vertical open-ended air passages. When the unit is installed in an enclosed space, air flowing downwardly into the passages will be more effectively cooled and consequently will acquire greater downward velocity than would otherwise prevail, thus resulting in a more rapid and efficient circulation of the surrounding air.

PAT. 2,430,408. Coin contact and release relay assembly. Patented Nov 4, 1947.
A coin-controlled switch and release unit for operating the circuits of vending machines, phonographs, and various other machines. An insulated pocket has two or more contact blades which, when bridged by insertion of a coin, close the circuit. A release device consists of an electromagnetic relay with a pivoted armature having an insulated plate fixed thereto which forms a release door for coin pocket and is urged by a spring to normally closed position: When coin is inserted, the circuit is closed, energizing the relay, and the pole of the magnet moves the armature to open the pocket and permit the coin to pass from the pocket, breaking the circuit and resetting the mechanism. (Owner) City Vending Equipment Corporation, 58--64 Maurice Ave., Maspeth, N. Y. Groups 35--73--74; 36--61. Reg. No. 9,092.

PAT. 2,306,682. Rug stretcher machine. Patented Dec 29, 1942.
An adjustable rug stretcher and drying rack maintains rug in its proper size and shape while being cleaned, sized, etc. A pair of parallel side rails are supported by legs at each end, with cross-braces to form a rigid table-like structure. Crossed rods provided with turnbuckles for placing them under proper tension maintain fixed parallel relation of rails. Front and rear heads, transversely overlying rails, are provided with upstanding pins which are forced into ends of rug. Co-acting means are provided on rails and rear head for locking in position to fit length of rug. (Owner) Mrs. Beatrice Zumwalt. Address correspondence to Eugene D. Farley, 517 Dekum Bldg., Portland 4, Oreg. Groups 25--99; 33--91. Reg. No. 9,093.

PAT. 2,430,711. Tumbler controlled locking device. Patented Nov 11, 1947.
Tumbler controlled locking assembly for permutation or combination locks is designed so that when the lock is installed the tumbler back can be removed only when the tumblers are turned to their proper opening combination. This prevents unauthorized persons from tampering with the lock when the safe is open to ascertain the combination. A special screw which anchors the tumbler back to the usual lock plate of a safe or vault is provided with its shank flattened along one side. The screw shank extends inwardly above a group of disc-shaped, rotatable tumblers, each having a notch in its side edge. The edges of the tumblers are close enough to the shank to prevent rotation of the screw. Only a person knowing the combination with the notches aligned to provide clearance space to permit rotation of and unscrewing of the screw. (Owner) F. Dusterwald, 1575 East 12th St., Brooklyn, N. Y. Group 33--59. Reg. No. 9,094.

PAT. 2,430,761. Lathe chuck. Patented Nov 11, 1947.
A lathe chuck for various types of metal-working machines. Jaws move radially to the spindle axis and recede into hollow body of spindle to give a smooth path for work to slide in an prevent accumulation of dirt. When work is placed in the spindle, an operating rod is moved to slide a jaw-actuating ring along the spindle, whereupon wedging faces of the ring and jaws move the jaws against the work to clamp it in place. A stop limits the distance work is inserted, and removable adapters on jaws accommodate work of different sizes. (Owner) Henry J. Duphily, Box 353, North Las Vegas, Nev. Group 35--43. Reg. No. 9,095.

PAT. 2,107,226. Squeeze tube cap. Patented Feb 1, 1938.
This collapsible tube features a cap which does not have to be removed for contents to be dispensed. A rubber top on the cap lifts when pressure is applied so that a thin ribbon of toothpaste, shaving cream, etc., is exuded through a lipped opening. When pressure is relaxed, the resilient portion of cap resumes its normally sealed position and a supply of tube's contents is cut off. The closure is sanitary in that an airtight seal is formed. Tube is suited for holding ointments and other medicaments. (Owner) S. R. Weston, 1368 Columbia Road, Washington, D. C. Groups 30--51; 34--92. Reg. No. 9,096.

PAT. 2,430,178. Floating airplane field. Patented Nov 4, 1947.
Several pontoons (preferably hexagonal) with rounded abutting edges may be speedily assembled to complete a floating airplane field. The pontoons preferably are arranged in two layers with joints between pontoons in one layer staggered relative to those in the other layer. Detachable helical springs having pivoted yokes on each end are used to yieldingly and resiliently connect the upper and lower pontoons, thereby forming a flat body which will be yieldably deflected under load or action of the waves. Each pontoon has several tubular members or shells transversely secured therein for receiving the springs. When the pontoons are assembled, the shells register to form passages extending completely through both layers. By

increasing the diameter of the upper ends of the shells in the top layer, an annular shoulder is formed inside each one. Each of the shells in the bottom layer has an annular flange inside. Before insertion of the springs the yokes are turned to one side. After insertion, the bottom yoke is returned to normal so that its arms will underlie the flange. The spring is then stretched upwardly to bring the arms of the upper yoke above the shoulder. No additional fastening means other than the springs are necessary for connecting the pontoons. (Owner) Selby H. Kurfiss, 320 North Chelsea Ave., Kansas City 1, Mo. Group 37—31—32. Reg. No. 9,097.

Correction

PAT. 2,318,149. Ash receiver. Patented May 4, 1943.
An ash tray is constructed to serve several purposes. Inside an outer flute-edged tray is fastened a bowl-shaped inner ash tray so that a wedge-shaped recess is formed between the two. A lighted cigarette or cigar inserted into this recess is extinguished and held in an angular position. The recess is designed also to catch and snuff out a lighted cigarette left burning on the tray. The inner tray is designed to support lighted cigarettes without igniting butts in outer tray. (Owner) Sidney Ferman, 1715 Longfellow Ave., Bronx, New York, N. Y. Groups 32—29—69; 33—73; 39—81; 40. Reg. No. 8,944.

PAT. 2,432,922. Electric lawn edger. Patented Dec 16, 1947.
A powered device easily and economically operated for cutting and cleaning along the edge of a sidewalk. An elongated base having three traction wheels carries an adjustable support for an electric motor. A handle extending upward at an angle from the rear of the support has a cross hand-grip for guiding. A shaft, journalled transversely at front of base and operatively connected with the motor, carries at its front and three discs, held as an operative unit by clamping nuts. One disc is beveled for trimming along a sidewalk, another has teeth to cut the dirt and grass, and the third, which is smaller and acts as a spacer between the other two, has larger teeth for excavating a trench and throwing the dirt into a container attached at side of base. (Owner) Guy E. Mussy, 540 28th St., Oakland 9, Calif. Group 35—22. Reg. No. 9,098.

PAT. 2,430,685. Sling-type projector. Patented Nov 11, 1947.
A sling-type projector for hurling weights, grenades, etc., noiselessly to a considerable distance is mounted on a wheelbarrow type platform. Two U-shaped portions are secured horizontally at substantially right angles to a vertical frame, which is bolted to front of platform. The open ends of the U-shaped portions face each other with a chappel between. Extending inwardly in each U-shape are tension springs, with a pulley attached at free end of each spring except the spring most nearly adjacent the central portion of each U. A flexible cord is fastened to these two free springs and threaded alternately through the pulleys, with an intermediate length left between the U-shape portions for holding the projectile. When the projectile in the cord is pulled back (as in an ordinary slingshot), the springs are tensioned and resilient legs of the U are drawn inwardly. When cord is released, the tension of springs and legs is released and the projectile hurled forward. (Owner) Thomas F. Pearson, 2529 Lillian St., Fort Worth, Tex. Group 33—19. Reg. No. 9,099.

PAT. 2,428,435. Variable elevation wedge. Patented Oct 7, 1947. Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757.
This device is used to determine differences in elevation between points on aerial photographs being viewed through a stereoscope. The wedge is constructed so that direct measurements may be made without the application of mathematical formulas necessary with present devices used for the same purpose. The device consists of a pair of transparent sheets called scale and pointer sheets, each carrying a number of lines or dots corresponding to elevation marks and target dots, the marks and dots reproduced photographically on the undersides. In addition to this, the pointer sheet has a series of arrows, and the scale sheet a number of small curved scales for indicating photo-bases. Each of the sheets has a horizontal center line pierced by five small needle holes indicating eye-base distances, one of which is selected corresponding to the distance between the eyes of the operator so that proper adjustment may be made. Directions for use and full construction are given in the patent. (Owner) E. J. Schlatter, 4309 Russell Ave., Mt. Rainier, Md. Group 39—11. Reg. No. 9,100.

The following five patents are owned by the Herbert E. Brannon Estate. Address correspondence to Charles W. Hayner, 802 Pontiac State Bank Bldg., Pontiac 15, Mich.

PAT. 2,240,239. Electric fuse. Patented Apr 29, 1941. Group 36—19. Reg. No. 9,101.

PAT. 2,299,728. Electric circuit breaker. Patented Oct 27, 1942. Group 36—19. Reg. No. 9,102.

These two patents cover a standard size screw or plug type fuse which does not burn out except in the event of a short circuit and which breaks circuit only momentarily when an overload occurs (starting a motor, for example). The fuse in Patent 2,240,239 consists of a hollow shell containing a bimetallic resistor in series with a fusible link, the latter constructed to carry a current slightly in excess of that required to deflect the resistor, the link melting, however, if a sufficiently great overload occurs. The resistor is positioned in the shell so as to normally touch a contact point on the shell. Upon temporary overload, the resistor becomes heated and bends away from the contact, breaking the circuit. Patent 2,299,728 shows a fusible link connected to a metal ring of low melting point (e. g. zinc) grooved to receive one or a pair of cruciform bimetallic resistors having center contacts. An insulating ring between the resistors and a terminal complete the assembly.

PAT. 2,288,510. Temperature control. Patented Jun 30, 1942. Groups 33—66; 36—19—21. Reg. No. 9,103.

A thermostatic switch for the surface-heating elements of an electric range is located within the central opening of the element. The housing of the switch has a movable cap biased upwardly by a spring which holds it in contact with the bottom of a cooking vessel placed on the element. Circuit is opened or closed by a laminated element which moves a contact toward or away from the heating element enabling the switch to automatically hold a set temperature by either opening the heating circuit when temperature of the vessel is exceeded, or closing the circuit when temperature falls below the set limit. The cap is thus maintained at the temperature of the vessel. Adjustments are made by a control panel dial.

PAT. 2,333,291. Temperature responsive device. Patented Nov 2, 1943. Group 36—19—21. Reg. No. 9,104.

This patent is a continuation-in-part of Patent 2,240,239. The device is a laminated heat-sensitive metal element having a center contact and a number of radiating arms, the latter mounted by its extremities on a supporting structure and fitting loosely to permit flexing of the element. Several modifications are shown, one is which the device is fitted to a cooking vessel. The cooker has an outer shell having side and bottom walls which support an inner pan wound with a heating element. A removable cooking pot and cover are placed within the assembly, the temperature control device mounted in the side wall of the inner pan.

PAT. 2,297,870. Skate. Patented Oct 6, 1942. Group 39—49. Reg. No. 9,105.

This roller skate features a clamping arrangement which permits it to be held to the shoe without straps. The skate is comprised mainly of a sole plate and a pivoted heel plate, the latter shifted from an inclined to a horizontal position when the skate is attached. The sole plate includes a pair of toe clips linked to an actuating bar having a toe-engaging lug, the bar shifting the clips toward each other for adjustment when moved forward. The heel plate carries rear heel clips and is adjusted by a cam arrangement having a springed and slidable locking bar, the toothed end of the bar cooperating with a serrated sector to latch the heel plate in a horizontal position after proper fit has been made. The wheels of the skate include a self-lubricating feature.

PAT. 2,430,700. Knife holder-sharpener. Patented Nov 11, 1947.
A box-like casing to be hung on a kitchen wall for supporting and sharpening knives. Knife blades are inserted in slots in top of casing. Curved whetstones are arranged contiguously in pairs in compartment beneath slots so that cutting edges of knives are sharpened along their entire length as knives are inserted or withdrawn. (Owner) Maxwell Berman, 40 East 41st St., New York 17, N. Y. Group 25—99. Reg. No. 9,106.

PAT. 2,264,903. Bottle carrier. Patented Dec 2, 1941.
A one-piece holder for supporting two rows of beverage bottles by their necks is made from sheet metal and provided with a foldable handle. The body has spaced slots in the edges to admit the neck of bottle below its bulbous portion. Upturned portions on either side of slot cause a wedging action against bulbous part of the bottle neck. Bottle must be tilted for insertion or removal. The carrier may be used whether wholly or partially loaded, and a single-bottle carrier may be made on same principle from stiff wire stock or strip metal. (Owners) Charles H. Kruse, B. Webster Harrison, Robert L. Black, Robert B. Harrison. Address correspondence to B. Webster Harrison, Union Trust Bldg., Cincinnati, Ohio. Groups 33—12; 40. Reg. No. 9,107.

PAT. 2,416,694. Transmission line voltage indicator. Patented Mar 4, 1947. (Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)
Comprises a housing, containing a section of coaxial line extending through it and provided with end connectors exterior to the housing whereby the instrument may be selectively inserted in a transmission line; a circuit, including coaxial line; a carbon resistor having a range of the order of 25,000 ohms; a microwave type crystal rectifier in series with resistor; a condenser in series with resistor and rectifier; and a jack in the circuit for plug-in connection. The meter deflections produced are direct indications of the power output of the transmitter being tuned. Inventor states the indicator is for tuning radio transmitters, is compact, quick-acting, and usable over a wide range of frequencies; is readily transferable from one transmitter to another, and capable of definitely revealing the presence and magnitude of standing waves. (Owner) David A. Howard, Jr., 2200 Riverside Ave., Apt. 18, Jacksonville 4, Fla. Group 36—61. Reg. No. 9,108.

PAT. 2,431,785. Bread pan greasing device. Patented Dec 2, 1947.
A pan-greaser designed to grease a number of pans in one operation. Pans are usually held together as a unit. A long horizontally held handle is hollow and made in two sections so that the cover may be removed and grease introduced into the lower trough. As many clips as there are pans in a row are connected downward from the handle. Each clip, which is approximately the width of a pan, consists of two hollow parts, receiving grease from openings in the handle trough and, by means of a strong spring, gripping a grease-soaked pad. The grease pad extends across the bottom and up the sides of the clip in inverted U-form conforming generally to the tapered form of the bread pan. The clips are introduced into the pans in such a way that in one continuous motion the farther end of the pan, the full width of the bottom and the sides, and the nearer end may be greased. Any light material may be used in construction. (Owner) Frederick Bauer, 527 Hamilton St., Wausau, Wis. Group 35—51. Reg. No. 9,109.

PAT. 2,430,682. Auxiliary table top. Patented Nov 11, 1947.
An auxiliary octagonal (or any desired shape) table top for removably placing on a conventional card table for use as a game table. A flat central section, of plywood or the like, is surrounded by a trough for holding poker chips, the inner side wall being so formed that it contacts the corners of the table securing the auxiliary top against turning. Drinking-glass holders, are swingably attached to under edge of top between segments of trough. (Owner) A. G. Markle, R. 2, Lyon Lake, Marshall Mich. Groups 24—32; 25—11; 39—49. Reg. No. 9,110.

PAT. 2,407,795. Device for maintaining film loops. Patented Sep 17, 1946.
This eccentrically mounted friction roller maintains a film loop in a motion picture projector, camera, or the like. The roller is mounted some distance above the bottom of the loop with its long radius directed upwardly. Normally the roller does not engage the film, but it will be engaged and rotated by the film when the loop is sufficiently diminished so that the long radius of the roller will move downwardly to restore the loop. (Owner) Clarence L. Nelson, 2112 East 43rd St., Minneapolis 7, Minn. Group 39—12. Reg. No. 9,111.

The five following patents relating to water heaters or heat-exchanging devices which may be used for heating fluids or plastic substances of various kinds and classes are owned by Mrs. Thomas H. Ireland. Address correspondence to Howard E. Thompson, 217 Broadway, New York 7, N. Y. Group 33—62—65—69.

PAT. 1,887,205. Heater element. Patented Nov 8, 1932. Reg. No. 9,112.

Heating element comprises an elongated tube-like fitting which is closed at one end by a heavy thick flanged end wall and threaded at the other end for connection to a suitable pipe of a hot water installation. The interior of the fitting is sub-divided into separate longitudinal

passages to provide for circulation of fluid back and forth through the fitting. These passages communicate with an uninterrupted chamber left inside the fitting near the closed end. The flanged closed end only is adapted to be exposed to products of combustion. When installed, the flange on the closed end will abut an interior wall of a furnace or the like while a detachable flanged collar which is slid on the outside of the fitting will abut an exterior wall. A set screw holds collar in place. Two of the fittings may be employed for supplying hot water to a humidor, although a variable number may be used in other types of installation.

PAT. 1,962,773. Water heater. Patented Jun 12, 1934. Reg. No. 9,113.

The coil of this fluid heater includes a tubular casing with a removable tube which is open at both ends disposed inside the casing. The interior of the tube is sub-divided by removable partition plates into several longitudinal passages which communicate with each other to form a continuous passage for circulation of fluid to be heated. A fluid-heating medium is circulated in an annular chamber surrounding the tube to heat the water in the tube. The casing may be connected by pipes to a source of hot water. One end of the casing may be removed to permit removal of the partition plates to facilitate cleaning without disturbing any pipe connections.

PAT. 2,016,746. Fluid heater. Patented Oct 8, 1935. Reg. No. 9,114.

The coil of this heater includes an outer vertically positioned tubular casing with an inner tubular casing removably inserted therein to provide an annular chamber surrounding the inner casing through which a fluid heating medium may be circulated. The ends of the outer casing are closed by removable end plates while both ends of the inner casing are open. A hollow cylindrical body which is closed at both ends and spirally grooved on its outer side surface is removably and snugly inserted within the inner casing to form a continuous spiral passage through which a fluid medium to be heated may be circulated. The inner casing is longer than the spiral body to provide fluid chambers inside the inner casing at opposite ends of the spiral body. These chambers may be connected by pipes to a hot water storage tank or the like. The outer casing may be connected to pipes from a boiler or other source of hot water. The lower end plate of the outer casing may be removed to permit removal of the spiral body to facilitate cleaning, repair, etc., without disturbing any pipe connections. The inner casing may also be readily removed by disconnecting its pipes. Modification shown.

PAT. 2,021,009. Heat exchanger. Patented Nov 12, 1935. Reg. No. 9,115.

This exchanger for heating fluids or plastic substances is designed to facilitate removal of the coils to permit cleaning, repair, or replacement and to provide a relatively large radiating or contact surface for a fluid-heating medium, thereby resulting in rapid transfer of heat. A series of separate elongated tubular sections, which are T-shaped in cross section, are arranged side by side inside a casing to provide two independent continuous coil-like fluid passages through the exchanger. One passage extends through the tubular sections while the other extends between opposed sections and around the ends. Both ends of the casing are closed by end plates. One end plate may be removed to permit each tubular section to be separately removed for cleaning, etc. A suitable heating fluid may be circulated through one passage and a fluid to be heated circulated through the other passage. Modifications are shown.

PAT. 2,029,927. Water heater. Patented Feb 4, 1936. Reg. No. 9,116.

This heater is constructed and arranged so that products of combustion will first contact the coil and then the bottom of a storage tank or boiler to render the heater more efficient. The construction and arrangement of the coil also facilitate easy cleaning. The coil comprises a tubular casing having spaced lateral tubes which are closed at their outer free ends. A removable baffle plate divides each tube into two longitudinal passages which communicate with each other and the bore of the casing to provide a continuous zig-zag passage for circulation of water through coil. Plugs in openings in the casing may be removed to permit removal of the baffles for cleaning them and the tubes. The casing may also be cleaned out by removing plugs in a four-way T-coupling on the end of the casing. Modification shown.

PAT. 2,431,192. Dispensing device. Patented Nov 18, 1947.
A dropper, attachable to a bottle, for dispensing liquids in measured quantities without visual control of user. Rubber bulbs holding different amounts are supplied. A glass or plastic tube (like a medicine dropper) with a small-opening spout passes through the bulb and into the bottle, so that four or five perforations in the tube are covered by the bulb. When bottle is inverted, liquid flows through the perforations in the tube into the bulb but does not flow out through the spout because of the smallness of the opening and the capillary forces in the liquid. When bulb is compressed, liquid contained therein is dispensed through the dropper. (Owner) Charles E. Munson, 31 Canoe Brook Parkway, Summit, N. J. Groups 30—51; 32—99. Reg. No. 9,117.

PAT. 2,020,992. Exercising machine. Patented Nov 12, 1935.
A movable motor-operated exercising machine has base with a motor thereon connected to rear driving shaft. A casing houses a speed-reduction unit supported in an angularly adjusted position about the axis of driving shaft. A rectangular frame is mounted vertically on base. A pair of lower pedals and a pair of upper cranks at sides of frame serve as foot rests and hand-grips and are rotated by a transmission from driven shafts to cause the arms and legs to go through circular motions. Operator may sit on table if desired and may slow down machine by pressing heavily on pedals. In a modified form the machine is set at various inclined positions to exercise different muscles. (Owner) Isabelle M. Caplan, c/o Samuel J. Stoll, 93—03 Sutphin Boulevard, Jamaica 2, N. Y. Group 39—49. Reg. No. 9,118.

PAT. 2,163,392. Man's vest. Patented Jun 20, 1939.
When worn with a coat, this garment gives the appearance of a formal shirt and formal vest but in reality consists of an openable shirt front and vest front with lower end of shirt front releasably connected to a belt by a slide fastener. Collar and shirt portion are integrally formed. A back panel may be formed integrally with the neck portion and be connected to belt. Belt has elastic insert or adjustable straps. Modifications are shown. (Owner) Mary Bello, 1678 83rd St., Brooklyn, N. Y. Group 23—11—21. Reg. No. 9,119.

PAT. 2,431,868. Detachable shoe heel. Patented Dec 2, 1947.
This patent provides a means by which heels may be replaced, without the use of nails, for repairs or style changes. A detachable heel has slot into which a T-shaped formation may be inserted, the T-shaped formation depending from a base member or clamping assembly made up of a rigid plate and a flexible spring-biased top plate. The shoe to which the clamping assembly is to be attached is slightly modified, the heel portion of the upper being cut so that the innersole may be raised to disclose an inner flange to which the base member is clamped. A lock bar on the forward face of the heel is slid into place across the slot to restrain the heel in place. (Owner) Thomas Gilmour, 611 New York Ave., Brooklyn 3, N. Y. Groups 31—41; 33—99. Reg. No. 9,120.

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